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## ON THE COMPOSITION OF THE PRECIPITATE FROM PARTIALLY ALKALINIZED ALUM SOLUTIONS.

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In their study of floc formation, Theriault and Clark (1923) left open the question of the composition of the precipitate which is formed when alkali is added to solutions of aluminium salts. The investigation here described is a preliminary examination of this phase of the fundamental aspect of water clarification by the alum process.

The statement is often made that, when an alkali hydroxide is added to the solution of a soluble salt of aluminium, hydrated aluminium hydroxide is precipitated. Schumberger (1895) stated that when to 1 mol of aluminium sulphate, $Al_2(SO_4)_3 \cdot 18H_2O$, are added 5 mols of potassium hydroxide, a precipitate of the composition $2(Al_2O_3) \cdot SO_3 \cdot 7H_2O$ was formed as determined by analysis. Grobet (1922), by physical measurements, claimed that there was a basic salt of the following composition: $Al_2(SO_4)_3 \cdot 2Al(OH)_3$. This was formed, however, only when sodium hydroxide was added to a concentrated alum or aluminium sulphate solution. Williamson (1923) claimed that, when 2 or 4 mols of sodium hydroxide were added to 1 mol of potassium alum, $K_2SO_4Al_2(SO_4)_3 \cdot 24H_2O$, a basic salt of the approximate composition $(Al_2O_3)_5 \cdot (SO_3)_3 \cdot 15H_2O$ was formed. A slight variation in composition between the two experiments was attributed to analytical error, Various other basic salts of aluminium, formed in different ways, have been described by Kremann and Huttinger (1908), Bancroft (1922), Rose (1913, 1914), Kullgren (1904), Adolph and Pauli (1921), Denham (1908), and Hale (1914).

Three months before the article of Williamson appeared, work was begun at the Hygienic Laboratory to determine the composition of the precipitate formed at different pH values by the addition of sodium hydroxide to potassium alum. Strangely enough, a method nearly identical with that of Williamson was employed. The method was as follows: 4.740 grams of $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O$, several times recrystallized, were dissolved in distilled water and made up to 1,500

c. c. To this solution, in a 3 liter beaker, were rapidly added 500 c. c. of a standardized solution of sodium hydroxide and the two solutions were thoroughly mixed by stirring. This was repeated with varying amounts of NaOH. The precipitates were allowed to settle for half an hour, and the pH values of the supernatant liquid were determined colorimetrically (Clark, W. M., 1922). In each case the supernatant liquid was then removed from the precipitate by centrifuging and decanting. The precipitate was again shaken up with 200 c. c. of distilled water in a glass-stoppered bottle and centrifuged. This process was continued until, after centrifuging, the wash water was found to be almost completely free from sulphate ion. At this point dispersion of the precipitate began to take place. A portion of the precipitate was then dissolved in dilute hydrochloric acid, analyzed for sulphate gravimetrically by precipitation as $BaSO_4$, and for alumina by Blum's (1916) method. In these experiments the concentration of the aluminium salt was kept constant, namely, 0.005 molar with respect to aluminium, and the experiments were done at room temperature. A second set of experiments was made, keeping the concentration of aluminium 0.02 molar. A third set was made, using 0.02 molar aluminium, the solution being kept at 100° C. The solution in the latter case was decanted as rapidly as possible through a filter and the precipitate washed with boiling water till the wash water gave no test for sulphate. It was very difficult to keep the precipitate hot, however, and results were very difficult of even approximate duplication.

Wherever possible a quantity of precipitate was analyzed, which yielded at least 0.2 gram of $Al_2O_3$.

The above method of preparing the samples for analysis is open to the objection that washing the precipitate by a solution (i. e. distilled water) different in composition from that in which it was formed may alter the composition of the precipitate. If (as the results of these experiments suggest) the precipitate consists of two or more components, and if these components vary markedly in solubility, the composition of the precipitate should be changed by washing with wash water of different compositions. Several experiments were made in order to test the effect upon the composition of the precipitate of varying the pH of the wash water. In each experiment one portion of the precipitate was washed by a solution brought to the same pH as that of the alum-sodium hydroxide mixture by adding a very small portion of acid or alkali to a large volume of distilled water. Upon analysis the two samples in each case were found to have very little difference. It was concluded that the use of distilled water for washing the precipitate was not objectionable from the standpoint of pH. The components of the precipitate seem to have solubilities of the same order of magnitude.

Several experiments were made in which the concentration of the sulphate radical was varied over a wide range by the addition to the alum solution of potassium sulphate or ammonium sulphate. This had practically no effect upon the composition of the precipitate formed at a definite pH. Increasing the concentration of aluminium up to 0.1 molar was likewise without effect as long as results at the same pH were compared. This indicates that if a basic sulphate is one of the components of the precipitate, its solubility is so slight that varying one of the factors determining its solubility does not change the composition of the precipitate appreciably.

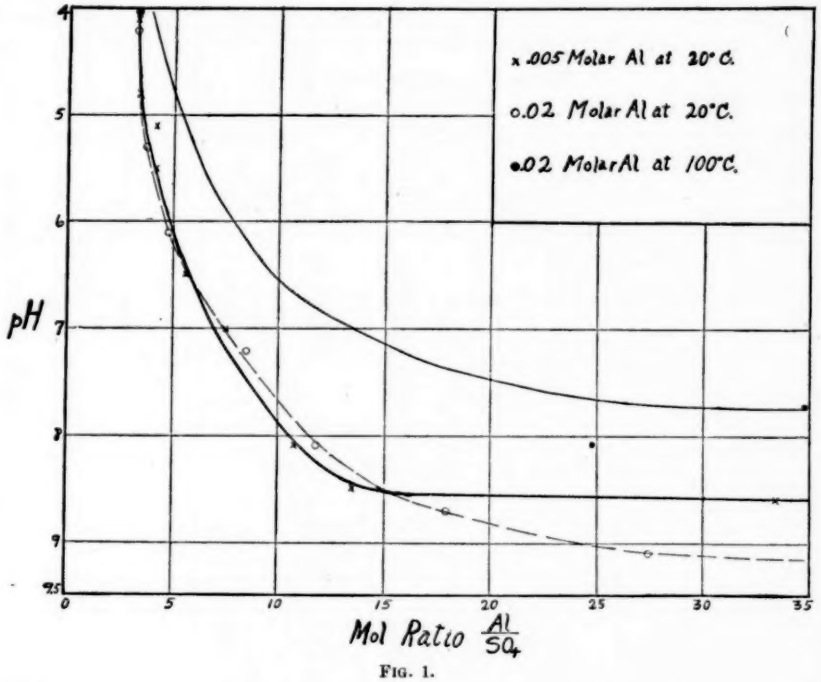


FIG. 1.

The results are given in Tables I, II, and III, and represented graphically in Figure 1, in which the mol ratio of aluminium to sulphate present in the portion of precipitate analyzed is plotted against pH. It is to be observed that between pH 4.0 and pH 5.5 the ratio of aluminium to sulphate is almost constant for the experiments performed at room temperature. At the higher pH values the proportion of sulphate becomes rapidly smaller and finally disappears completely. Below pH 4.0 no analysis could be made because the quantity of precipitate here decreases to the vanishing point.

TABLE I.—*0.005 molar Al at 20° C.*

| pH. | Mols NaOH added per mol of Al. | Weight of $Al_2O_3$, gms. | Weight of $BaSO_4$, gms. | Ratio $\frac{Al}{SO_4}$ expressed in mols. |
|---|---|---|---|---|
| 4.1 | 0.656 | 0.0909 | 0.1273 | 3.269 |
| 4.2 | 1.180 | .1379 | .1889 | 3.357 |
| 4.8 | 2.186 | .2311 | .3180 | 3.326 |
| 5.1 | 2.405 | .2331 | .2565 | 4.150 |
| 5.5 | 2.492 | .1900 | .2059 | 4.223 |
| 6.5 | 2.623 | .1197 | .0970 | 5.647 |
| 7.0 | 2.711 | .2798 | .1699 | 7.540 |
| 8.1 | 2.842 | .1924 | .0788 | 11.170 |
| 8.5 | 2.929 | .2807 | .0950 | 13.520 |
| 8.6 | 2.995 | .2973 | .0408 | 33.340 |
| 8.9 | 3.060 | .0961 | 0 | ∞ |
| 9.6 | 3.279 | .2312 | 0 | ∞ |

TABLE II.—*0.02 molar Al at 20° C.*

| pH. | Mols NaOH added per mol of Al. | Weight of $Al_2O_3$, gms. | Weight of $BaSO_4$, gms. | Ratio $\frac{Al}{SO_4}$ expressed in mols. |
|---|---|---|---|---|
| 4.2 | 1.180 | 0.1577 | 0.2176 | 3.317 |
| 5.3 | 2.405 | .2918 | .3686 | 3.623 |
| 6.1 | 2.533 | .2558 | .2449 | 4.781 |
| 7.2 | 2.711 | .3028 | .1854 | 7.470 |
| 8.1 | 2.798 | .3954 | .1546 | 11.710 |
| 8.7 | 2.929 | .3151 | .0807 | 17.890 |
| 9.1 | 2.995 | .4825 | .0807 | 27.370 |
| 9.4 | 3.040 | .1884 | 0 | ∞ |
| 9.5 | 3.148 | .2522 | 0 | ∞ |
| 9.8 | 3.297 | .2363 | 0 | ∞ |

TABLE III.—*0.02 molar Al at 100° C.*

| pH. | Mols NaOH per mol of Al. | Weight of $Al_2O_3$, gms. | Weight of $BaSO_4$, gms. | Ratio $\frac{Al}{SO_4}$ expressed in mols. |
|---|---|---|---|---|
| 4.0 | 1.180 | 0.1392 | 0.1976 | 3.224 |
| 4.6 | 2.579 | .1417 | .1151 | 5.635 |
| 6.6 | 2.700 | .2787 | .1815 | 7.030 |
| 6.7 | 2.850 | .2346 | .0830 | 12.07 |
| 7.8 | 2.995 | .1928 | .0155 | 53.48 |
| 8.6 | 3.060 | .1580 | 0 | ∞ |
| 9.8 | 3.309 | .1901 | 0 | ∞ |

In Figure 2 the mol ratio of aluminium to sulphate in the precipitate is plotted against the mols of NaOH added per mol of aluminium. The three curves are found to coincide throughout within experimental error. Up to the addition of 2.5 mols of NaOH per mol of aluminium the precipitate remains nearly constant in composition and approximates the formula $5(Al_2O_3)\cdot 3SO_3$ stated by Williamson to exist when one or two mols of alkali per mol of aluminium are added to potassium alum. When more than 2.5 mols of alkali are added the proportion of sulphate rapidly decreases, the curve becoming asymptotic to the "three equivalents" axis. In other words, when

a quantity of sodium hydroxide equal to or greater than the amount necessary to react with the aluminium ion in solution according to the equation $Al^{+++} + 3(\overline{OH}) \rightleftarrows Al(OH)_3$ is added, the precipitate can be washed free of sulphate. It is evident from the curves that the quantity of alkali added to a definite quantity of aluminium salt is a very important factor in determining the composition of the precipitate.

In a later part of this paper it will be shown that at the point where 2.5 mols of sodium hydroxide per mol of aluminium have been

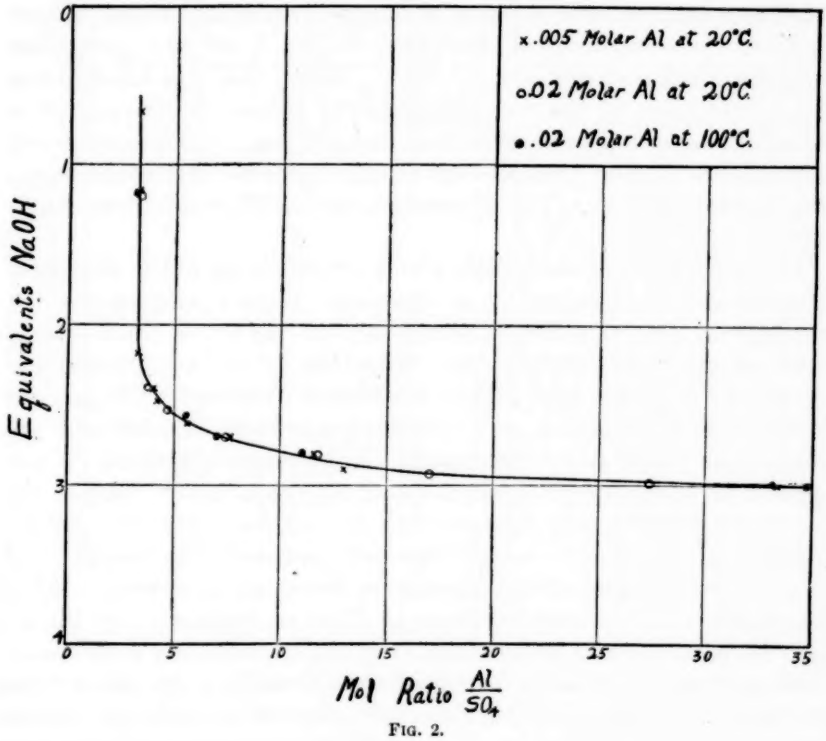


FIG. 2.

added, precipitation of aluminium is nearly complete, the composition of the precipitate remaining practically constant until this condition is reached. While the addition of a large proportion of sodium hydroxide changes the composition of the precipitate very markedly, the changes in solubility of the aluminium is almost negligible. This is a further indication that solubility of the components of the precipitate is of a similar order of magnitude. The fact, however, that the addition of further alkali at this point does materially alter the composition of the precipitate in the direction of a smaller proportion of sulphate, and that the solubility of the aluminium does

decrease, even though slightly, points to a smaller solubility for the more basic constituent.

Since the results obtained suggest that two or more components may be precipitating over the range in which less than 3 mols of NaOH per mol of Al have been added, an attempt was made to find an equation which would express mathematically the results obtained. So far these attempts have been unsuccessful. The chemical nature of the substance or substances precipitating has not yet been proved.

Since the titration curves for $AlCl_3$ and $Al_2(SO_4)_3$ as determined by Theriault and Clark are almost identical, it was assumed that chloride would be carried down similarly to sulphate in the Al precipitate. It was proposed, therefore, to run a set of experiments in which alum was replaced by $AlCl_3$. When this was tried it was found that most of the insoluble material persistently remained in colloidal suspension even after long centrifuging. Upon attempting to wash the portion precipitated, it also formed a colloidal suspension of great stability. The experiments with $AlCl_3$ were consequently given up.

The importance of the results with alum solutions in the analytical determination of aluminium is obvious. Blum's method for the gravimetric determination of aluminium as $Al_2O_3$ was consequently tried out upon potassium alum. When the precipitate, filtered and washed by hot 5 per cent $NH_4Cl$ solution as described by Blum, was dissolved in dilute nitric acid and analyzed, both chloride and sulphate were found to be present in considerable quantities. Upon ignition of the precipitate for 10 minutes over a Meker burner, the chloride was completely removed, but the sulphate was only slightly reduced in quantity. Longer ignition reduced the quantity of sulphate but slowly. If the precipitate, however, after being washed is redissolved in dilute hydrochloric acid and reprecipitated by Blum's method, it is found to be free from sulphate as ordinarily determined.

Since these experiments indicated that, if chloride is carried down similarly to sulphate, it is more easily removed by ignition, the following experiments were carried out to determine the relative conduct of the chloride and sulphate: A 1-gram sample of purified $AlCl_3 \cdot 6H_2O$ was placed in a platinum crucible and heated over the Meker burner for 20 minutes. Upon analysis, the residue was found to be free from chloride. A 1-gram sample of $Al_2(SO_4)_3 \cdot 18H_2O$ was likewise heated for 20 minutes over the Meker burner. Upon analysis it was found that the sulphate content was reduced by 93.8 per cent. A second sample heated for 2 hours still contained some sulphate. A 1-gram sample of $AlCl_3 \cdot 6H_2O$ precipitated by Blum's method from 400 c. c. of solution containing dilute HCl was found after 10 minutes' ignition to contain no chloride. From these experiments it is concluded that when Blum's method for the analy-

sis of aluminium is used, care must be taken that sulphate is absent or is present only in very small quantities. If present in large quantities, a second precipitation must be made from hydrochloric acid solution in order to prevent interference by the sulphate. The reason that correct results may be obtained by precipitation from chloride solutions but not from sulphate solutions is indicated by the experiments described above.

If for varying amounts of sodium hydroxide added to a constant amount of alum the pH values be experimentally determined and plotted against equivalents of sodium hydroxide added per mol of aluminium, a curve such as curve A, the experimental curve for

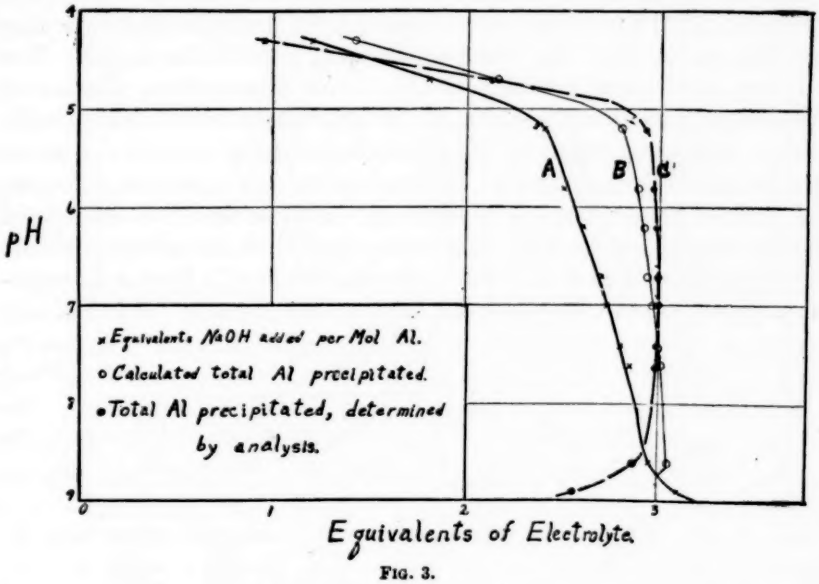


FIG. 3.

0.005 molar Al, in Figure 3 is obtained. From experimental curve A and from the experimental data plotted in Figures 1 and 2 a calculation of the residual aluminium left in solution is made. For the purpose of this calculation let the assumption be made that the quantity of NaOH added, represented by any point on curve A, also represents an equivalent quantity of aluminium precipitated by a metathetical reaction. (We know this to be experimentally untrue for both small additions of NaOH, where no precipitation occurs, and for large additions, where the excess NaOH redissolves the precipitated aluminium. Neither does this assumption allow for other aspects of the equilibria.) From the data represented in Figures 1 and 2 and from the assumption just made, the quantity of sulphate present in the precipitate for a given addition of NaOH can be calculated. Let us assume that each mol of sulphate in the precipitate represents

two-thirds of a mol of aluminium precipitated in addition to that precipitated by a metathetical reaction with NaOH. If the sum of these two values be calculated for each point on curve A, a second curve may be plotted representing the total quantity of aluminium precipitated at each pH. Curve B, Figure 3, represents these values for 0.005 molar Al. Conversely, the distance of this curve from the "three equivalents" axis should represent the residual aluminium left in solution. It is obvious, of course, that this calculation can not be carried past the point representing the addition of three equivalents of NaOH. Theoretically, curve B should not cross the "three equivalents" axis.

These approximating assumptions were tested as follows: Alum solutions, 0.005 molar with respect to Al, were precipitated by varying amounts of NaOH as described in the early part of this paper. The pH was determined colorimetrically. The filtrate from 2 liters of solution, including one washing of the precipitate, was acidified with a little HCl, evaporated to small volume, and the quantity of alum in solution was determined by Blum's method. The results represent the residual aluminium left in solution. If these results be expressed in mols Al and subtracted from 0.005, the values obtained represent the quantity of aluminium precipitated. Curve C, Figure 3, represents these values. The data for Figure 3 are given in Table IV.

TABLE IV.—*0.005 molar Al.*

| pH | Mols NaOH added per mol Al. | Calculated mols Al per liter precipitated by NaOH. | Calculated mols Al per liter precipitated as sulphate. | Calculated total mols Al precipitated per liter. | Grams per liter $Al_2O_3$ remaining in solution, by analysis. | Mols Al per liter precipitated, by analysis. |
|---|---|---|---|---|---|---|
| 4.3 | 1.200 | 0.00200 | 0.00040 | 0.00240 | 0.17400 | 0.001590 |
| 4.7 | 1.800 | .00300 | .00060 | .00360 | .07390 | .003551 |
| 5.2 | 2.400 | .00400 | .00067 | .00467 | .00605 | .004882 |
| 5.8 | 2.500 | .00417 | .00064 | .00481 | .00325 | .004937 |
| 6.2 | 2.600 | .00433 | .00054 | .00487 | .00205 | .004960 |
| 6.7 | 2.700 | .00450 | .00039 | .00489 | .00035 | .004993 |
| 7.0 | 2.723 | .00454 | .00036 | .00490 | .00050 | .004990 |
| 7.4 | 2.800 | .00466 | .00033 | .00499 | .00085 | .004984 |
| 7.6 | 2.850 | .00475 | .00028 | .00503 | .00100 | .004980 |
| 8.6 | 2.950 | .00491 | .00016 | .00507 | .01095 | .004785 |
| 8.9 | 3.100 | [.00500] | .00000 | [.00500] | .03680 | .004279 |

While curves B and C in Figure 3 do not even approximately coincide, yet, over the range more acid than pH 7.0 (which is the range in which greatest approach to coincidence would be expected), there is a general similarity in the form of the curves. Recalling the crudity of the assumptions upon which curve B was constructed, this similarity may indicate that there is an approximate basis of truth in the assumptions.

Theriault and Clark (1923) left open the reason for the distinct slope of their titration curves of aluminium salts by alkalies between

the addition of two and the addition of three equivalents of alkali. In this regard they state: "It is found that by specifying ionizations other than those used in the elementary treatment given, we obtain a variety of equations which, upon the assumption of one or several components of small solubility, will reduce to a form giving essentially the same picture as that presented. Thus the equations we have given furnish a correct description of principles but tell nothing whatever of the actual components entering into the problem. This has become evident in our attempts to formulate the very distinct slopes of the experimental curves formed between the addition of two and the addition of three equivalents of alkali." The data given in this paper upon the composition of the aluminium precipitate furnish a qualitative explanation of the results obtained by Theriault and Clark. Further facts are needed, however, in order to attempt a quantitative explanation.

The greatest insolubility for an alum solution 0.005 molar with respect to Al, as experimentally determined, occurs between a pH of 6.7 and 7.0 where about 2.75 mols of NaOH per mol Al have been added. On both sides of this, however, ranging from pH of 5.4 to a pH of 8.5, is a broad zone of great insolubility. Theriault and Clark (1923) have found that best and most rapid flocculation of alum solutions occurs at a pH of 5.5. While solutions at this pH are not in the region of greatest insolubility for Al, they are in a region of great insolubility. It is interesting to note that this pH lies at the point where the precipitation of aluminium first approaches completion upon addition of NaOH, and in the region where the greatest proportion of sulphate is found in the precipitate. At this point about 2.4 mols of NaOH per mol Al have been added.

In comparing these results with determinations of residual alum found in filter effluents under commerical conditions, a certain amount of variation is observed. Buswell and Edwards (1922) have obtained a curve relating pH and residual alum which suggests that, if data were included for pH values lower than observed, the curve would pass through a minimum at pH 5.5. Baylis (1923) found a minimum of residual alum between a pH of 5.7 and a pH of 6.6. Hatfield (1923) reported a minimum of Al in the filter effluent at pH 6.1. Blum (1916), in his procedure for the analytical determination of aluminium, indicates that complete precipitation takes place between a pH of 6.5 and a pH of 7.5. There seems to be no general agreement as to the particular pH at which aluminium is most insoluble under these varying conditions. In general, however, a relatively broad zone of great insolubility is reported which, broadly speaking, covers about the same ranges of pH values.

SUMMARY.

1. A study of the composition of the precipitate formed at different pH values by the addition of sodium hydroxide to alum has been made.

2. Certain precautions to be adopted in the analytical determination of aluminium are stated, and the reasons for these precautions are given.

3. A theoretical and experimental study of the solubility of the aluminium precipitate at different pH values has been made and certain conclusions drawn therefrom. The results obtained are compared to those obtained under varying laboratory and commercial conditions by other workers.

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# COLLECTION AND PRESERVATION OF BLOOD SAMPLES FOR DETERMINATION OF CARBON MONOXIDE.

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## INTRODUCTION.

In investigations relating to poisoning by carbon monoxide it is often desirable to have a reliable method of collecting samples of blood from victims at the place of accident, and of shipping the samples to the laboratory without coagulation. The method should be simple and inexpensive; and it is very important to allow of no change in the amount of carbon monoxide in the samples before analysis, which might result from delays.

## PLAN OF INVESTIGATION.

Two types of containers for blood were investigated, and tests were made to find a suitable preservative which would prevent coagulation. In addition, tests were carried out to determine the gaseous changes taking place in the blood when it was allowed to stand for various periods of time in contact with the preservatives, such as might result in practice during the period between collection and analysis. From these tests suitable types of container and preservative were adapted and are recommended.

## METHOD OF COLLECTING SAMPLES.

*The Keidel tube.*[1]—This tube, devised some years ago for taking and shipping of specimens for the Wassermann test, was selected. It is a small, inexpensive article, which is easily handled, collects the sample quickly, and is conveniently shipped by mail. However, the exact design of the tubes on the market was found not to be quite suitable for our purpose, and it was necessary to make the size and type shown in Figure 1.

The desired quantity of powdered salt to be used as a preservative and anticoagulant is weighed into a clean, sterile, three-fourths by 5-inch test tube, and the tube is drawn out to a long thin tip. The tube is then evacuated to a pressure of 0.5 millimeters of mercury and sealed off, the total capacity of the finished tube or ampule being approximately 15 c. c. An ordinary 18 gauge intravenous needle with stylet guard is joined by about 2 inches of medium weight rubber tubing, with small lumen, to the shoulder at the base of the long tip of the ampule. A narrow test tube is placed over the needle and rubber hose as a cap, and protected from adhering to the rubber

[1] A sample bleeding tube for obtaining specimens for the Wassermann Reaction. By A. Keidel. Jour. Am. Med. Assoc., Chicago, Vol. 58, 1912, p. 1579.

during sterilization by a thin layer of cotton placed at the point where the tube, ampule, and cap meet. The whole is again sterilized by dry heat at 150° for 30 minutes.

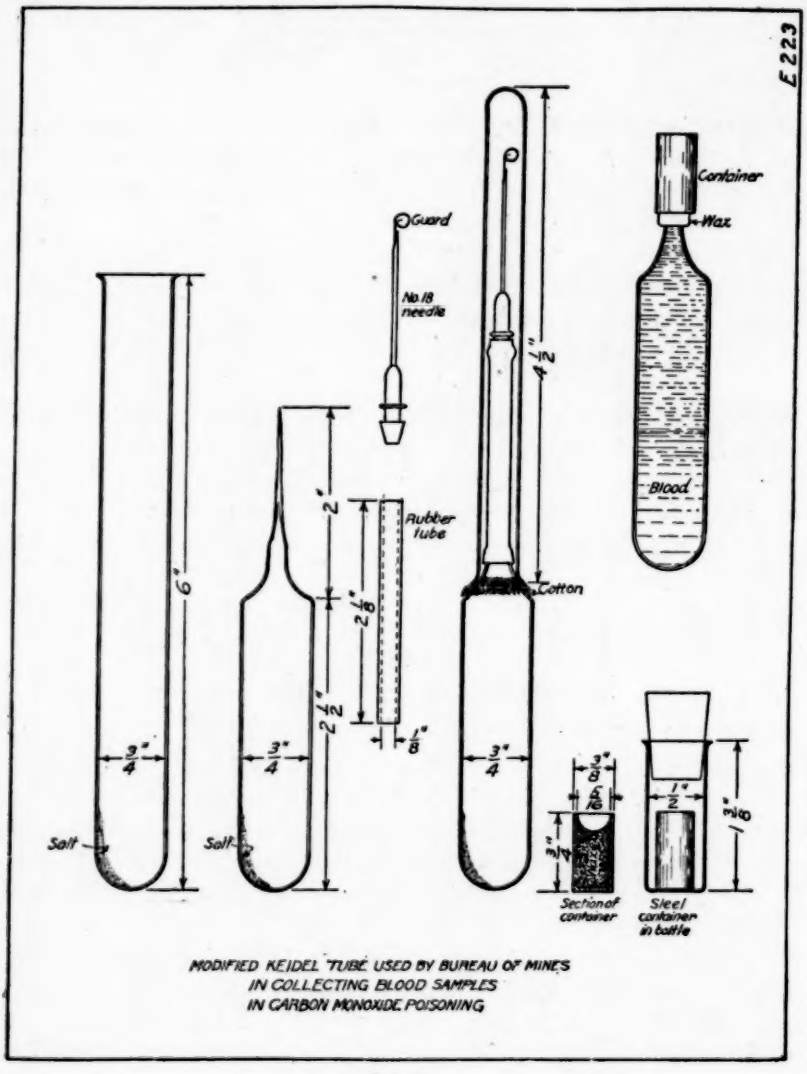


FIG. 1.

## COLLECTION OF BLOOD SAMPLES.

*Keidel tube method.*—In collecting the sample, the cap and guard are removed, the person's arm is prepared as for taking a Wassermann sample, and the tip of the needle is inserted in the vein. The rubber tube is then taken gently in both thumbs and forefingers, and the thin neck of the ampule within is broken.

When the ampule is full of blood, or has ceased filling, the needle is removed from the arm, the needle with rubber connection is detached, and the ampule is gently rotated for 2 minutes to dissolve the preserving salts. The ampule is then sealed by forcing a small metal cap filled with wax[2] over the broken tip, the cap and wax having been previously sterilized and kept in a small cork-stoppered bottle. By using this cap an effective seal is formed, and any wax that may be forced inside the tube will not aid coagulation.

A 15-c. c. tube, or ampule, was used for the investigation described herein, because 15 c. c. of blood was needed for a duplicate analysis by the Van Slyke method used.

An 18-gauge needle was found to be most suitable, as it allowed the tube to be filled more quickly, thus decreasing the disturbance to the patient and the probability of coagulation. This larger size also aids the completeness of filling (with a good vein there should be less than one-half c. c. of air left in the tube).

*Vial method.*—For use where Keidel tubes might not be available, the suitability of other containers was studied. Two types of 3-dram vials were selected, the one being closed with a plain cork stopper of good grade, and the other with metal screw top lined with a thin cork gasket. The same proportions of preservatives were used, and sterilization was effected as with the Keidel tubes, the only great difference in technique being in the filling of the tubes. This was done by inserting a needle into the vein and catching the blood as it flowed from the end, the blood flowing directly into the vial. When the use of these vials proved satisfactory in 24 instances, other tubes were mailed to the laboratories of the United States Public Health Service hospitals at San Francisco, Calif., Ellis Island, N. J., and Boston, Mass. Through the cooperation of the medical officers in charge at these institutions, the vials were filled and mailed to Pittsburgh, Pa. It was generally found that the screw-capped tubes tended to leak, but with the plain cork stoppers there was no trouble of this kind. In general, the Keidel tubes are preferable, because they fill more quickly; but the plain vials with cork stoppers are excellent substitutes.

## PRESERVATIVES OR ANTICOAGULANTS.

Although the prevention of clotting is aided materially by the manner in which the sample is taken, and also by the design of the container, the chief means of preventing coagulation lies in the anticoagulant used. Of these, three were tried, namely, sodium or potassium oxalate, used routinely in blood chemistry to preserve specimens for analysis; sodium citrate, employed in transfusions; and sodium fluoride.[3]

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[2] Made by melting together 90 parts beeswax and 50 parts Venice turpentine.

[3] Text-book of physiology. By W. H. Howell. Philadelphia, 1915. pp. 466–468.

Tables I and II summarize the experience with the various salts in different concentration in the tubes and in 100-c. c. bottles.

TABLE I.—*Influence of anticoagulants on beef blood in tubes.*

| Preservative and container. | Number of tubes tested. | Average amount of air in tubes. | Per cent of tubes that clotted during days— | | | | Tubes that did not clot. | |
|---|---|---|---|---|---|---|---|---|
| | | | 0-5 | 5-10 | 10-15 | 15+ | Per cent. | Days observed. |
| Potassium oxalate: | | | | | | | | |
| (1) Keidel tube— | | c. c. | | | | | | |
| 0.1 per cent by weight | 6 | 3.4 | 83 | 17 | ..... | ..... | 0 | 19 |
| 0.2 per cent | 41 | 2.4 | 2 | 0 | 0 | 0 | 98 | 357 |
| (2) Tubes with cork stoppers, 0.2 per cent | 5 | 2.6 | 0 | 0 | 0 | 0 | 100 | 16 |
| (3) Tubes with screw caps, 0.2 per cent | 6 | 2.0 | 0 | 0 | 0 | 0 | 100 | 15 |
| Sodium fluoride (0.3 per cent): | | | | | | | | |
| (1) Keidel tube | 48 | 2.1 | 2 | 0 | 0 | 14 | 84 | 376 |
| (2) Tubes with cork stoppers | 20 | 2.2 | 4 | 0 | 2 | 0 | 94 | 183 |
| (3) Tubes with screw caps | 18 | 3.0 | 17 | 0 | 0 | 0 | 83 | 183 |
| Sodium citrate: | | | | | | | | |
| (1) Keidel tube— | | | | | | | | |
| 0.1 per cent | 11 | 6.8 | 64 | 9 | 0 | 0 | 27 | 376 |
| 0.3 per cent | 4 | 7.7 | 25 | 0 | ..... | ..... | 75 | 9 |
| 0.4 per cent | 41 | 2.0 | 7 | 19 | 0 | 0 | 74 | 17 |
| (2) Tubes with cork stoppers, 0.4 per cent | 18 | 3.3 | 28 | 0 | 0 | 11 | 61 | 183 |
| (3) Tubes with screw caps, 0.4 per cent | 19 | 4.0 | 28 | 16 | 0 | 5 | 51 | 183 |

TABLE II.—*Influence of anticoagulates on beef blood in 100-c. c. bottles.*

| Preservative. | Number of bottles. | Per cent of bottle that clotted during days— | | | | Bottles that did not clot. | |
|---|---|---|---|---|---|---|---|
| | | 0-5 | 5-10 | 10-15 | 15+ | Per cent. | Days observed. |
| Potassium oxalate, 0.2 per cent | 36 | 0 | 0 | 0 | 0 | 100 | 219 |
| Sodium fluoride, 0.3 per cent | 50 | 10 | 2 | 2 | 4 | 82 | 186 |
| Sodium citrate: | | | | | | | |
| 0.4 per cent | 25 | 32 | 4 | 0 | 0 | 64 | 219 |
| 0.6 per cent | 7 | 0 | 43 | 0 | 14 | 43 | 186 |

From Table I it will be noted that the 0.2 per cent potassium oxalate and the 0.2 per cent sodium fluoride preservatives were the most satisfactory in preventing coagulation; and Table II shows that in one case with 0.2 per cent potassium oxalate, when 36 tubes were tested, none had clotted at the end of 219 days.

With any of the salts there is a gradual darkening of the blood on standing, but this change is more marked when the oxalate is used, in which case the sample frequently becomes almost black. Also, on standing, the cells may settle out from the plasma, but a good mixture may be obtained again by shaking.

### INFLUENCE OF PRESERVATIVE ON CARBON MONOXIDE CONTENT.

To determine whether the preservative caused any change in the carbon monoxide content, when there was a delay between sampling and analysis, and also to determine the effect of the presence of air in the tubes, the following parallel experiments were performed:

Into 100-c. c. bottles were measured 0.2 gram of potassium oxalate, 0.3 gram of sodium fluoride, or 0.4 gram of sodium citrate in the form of dried salt. The bottles were fitted with cork stoppers covered with tinfoil and were sterilized with dry heat. Carbon monoxide [4] was bubbled through three absorption tubes containing beef blood, the order of their positions relative to the gas coming from the generator being changed from time to time so as to promote equal saturation. The carbon monoxide content was determined by the Van Slyke [5] method, as modified by the writers.[6] The blood was then poured into a vial, or drawn up into a vaccuum tube by breaking

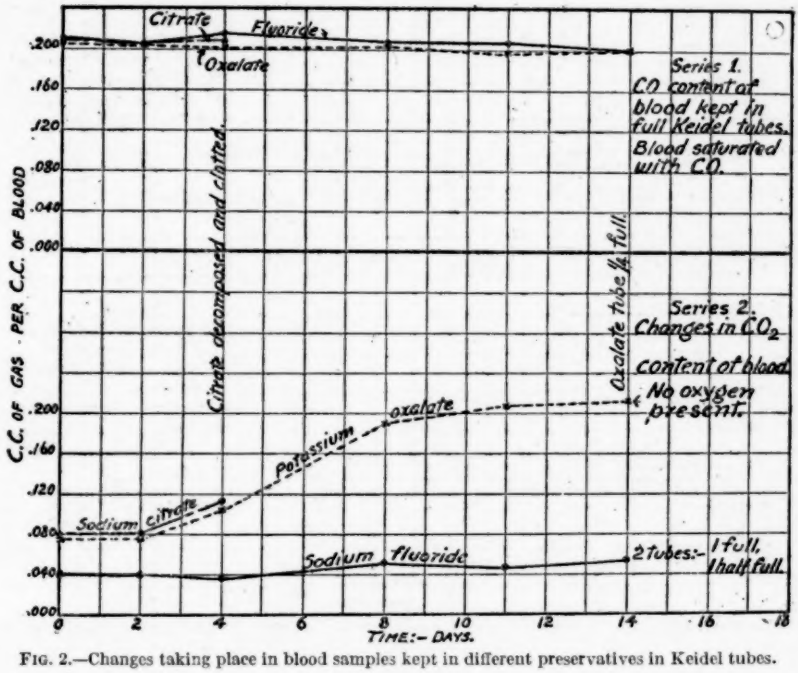


FIG. 2.—Changes taking place in blood samples kept in different preservatives in Keidel tubes.

the neck of the ampule below the surface of the liquid. The tubes were kept mostly in the darkness of a laboratory closet, thus preventing a possible loss in carbon monoxide hemoglobin from the influence of light.[7] To complete the resemblance of their treatment to that experienced by a sample sent through the mail, they were shaken daily. At intervals of two days the carbon monoxide con-

[4] Prepared by allowing formic acid to drop into concentrated sulphuric at 150°, washed through potassium hydroxide, and kept over water.

[5] The determination of carbon monoxide in blood. By D. D. Van Slyke, and H. A. Salvesen. Biol. Chem., vol. 40, Nov., 1919, pp. 103–107.

[6] Solubility of carbon monoxide in serum and plasma. By H. R. O'Brien and W. L. Parker. Jour. Biol. Chem., vol. 50, 1922, p. 289.

[7] The action of light on carbon monoxide hemoglobin. By H. Hartridge. Jour. Physiol., vol. 44, 1912, pp. 22–33.

tent of one tube of each set was determined on the Van Slyke apparatus. Unfortunately the citrate series was cut short by clotting. The curves in Figure 2 show the change which took place on standing, due to the preservative.

The tests as shown by these curves prove that there is no appreciable change in the carbon monoxide content when samples of blood are stored in the Keidel tubes over a period of two weeks, and that the three preservatives tested (sodium citrate not for full time) gave the same amounts of carbon monoxide, at least within the experimental error of analysis.

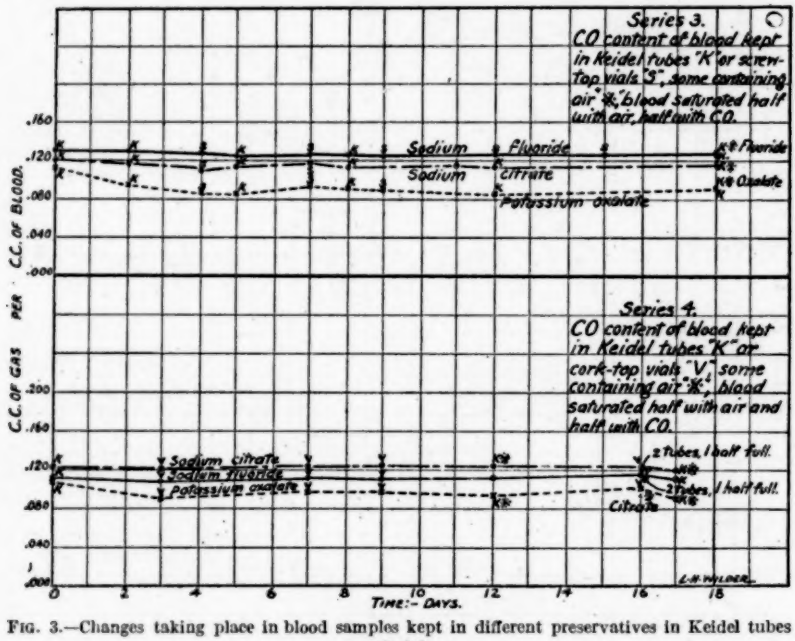
Series 3.
CO content of blood kept in Keidel tubes "K" or screw-top vials "S", some containing air "A", blood saturated half with air, half with CO.
Sodium Fluoride
Sodium citrate
Potassium oxalate
Series 4.
CO content of blood kept in Keidel tubes "K" or cork-top vials "V", some containing air "A", blood saturated half with air and half with CO.
Sodium citrate
Sodium fluoride
Potassium oxalate
2 tubes, 1 half full.
2 tubes, 1 half full.
C.C. OF GAS PER C.C. OF BLOOD.
TIME:- DAYS.
L.A. HALLDER

FIG. 3.—Changes taking place in blood samples kept in different preservatives in Keidel tubes and vials.

At the same time that the above tests were made, a second series of blood samples was prepared in which vials having screw-cork stoppers and plain cork stoppers, along with Keidel tubes, were used to collect the samples. In some cases the tubes were only partly filled in order to determine the effect of air on the carbon monoxide content. The results are shown in Figure 3. The curves in this figure show the carbon monoxide content in the blood to be practically constant for each of the preservatives tested, even at the end of 14 days.

When the blood is treated with sodium citrate or fluoride, neither the salt nor the standing has any appreciable effect on the carbon monoxide content, although in some instances the presence of a large proportion of air results in a slight decrease in the carbon

monoxide content. In the case of oxalated blood there was a small drop (fig. 3) in carbon monoxide, which is accentuated by the presence of air. There was always a loss of oxygen and an increase of carbon dioxide in the blood samples; this was most rapid with oxalated blood and most delayed with blood treated with fluorides.

## DEFECTS IN METHOD.

Under the most favorable conditions there will, at times, be some delay in filling the tube with blood or in getting the salt well dissolved and distributed. Some clotting does take place in spite of precautions, though this has been reduced to a minimum. The manipulation of the tube calls for some skill on the part of the person taking the sample, though ordinarily but little more than is required to secure a Wassermann specimen. A long needle may be necessary for cardiac puncture on a subject who has been killed by carbon monoxide asphyxiation.

## SUMMARY.

1. A modified Keidel tube method, by which 10 to 15 c. c. of blood may be collected in the field, shipped to a central laboratory, and kept with slight chances of clotting or change in carbon monoxide content has been described. If such a tube is not available, a small vial, well stoppered with a cork, will serve satisfactorily.

2. Sodium or potassium oxalate (0.2 per cent), sodium fluoride (0.3 per cent), and sodium citrate (0.4 to 0.8 per cent) inhibit coagulation, the last-named being the least efficient. Oxalate causes some change in the blood, with a slight altering of the carbon monoxide content. The fluoride is recommended because it is not open to these objections.

3. No change in the amount of carbon monoxide in the blood has been detected from standing when 0.3 per cent sodium fluoride is used.

*Acknowledgments.*—The writers wish to express their appreciation to A. C. Fieldner, Superintendent of the Pittsburgh Experiment Station of the Bureau of Mines, Department of the Interior, who supervised the work; to Dr. J. C. Burt, who placed the facilities of the State clinic at our disposal in gathering specimens of human blood; and to W. H. Parker, junior chemist at the Pittsburgh Experiment Station, for performing a major part of the analytical work.

# AUTOMOBILE COST IN RURAL HEALTH WORK.

## Report on Operation of Automobiles in Cooperative Rural Health Work in Virginia.

By H. McG. Robertson, Surgeon, United States Public Health Service, in charge of cooperative rural health work in Virginia.

A complete and accurate record regarding the cost of operating small 22½ horsepower automobiles in county health work in Virginia is given in this report. It is thought that the figures might be of interest to officers of State departments of health and of other organizations engaged in rural health work, particularly as it is believed that the conditions under which these cars were operated in Virginia were such as to make possible a fairly accurate estimate of the general average cost of this type of motor transportation in county health work.

Accurate monthly financial statements are made out for each county in which cooperative rural health work is being done. All bills presented monthly to the State board of health by the sanitary officer of each county are used in making up these financial statements. These bills are paid by check and are on file in the Division of Cooperative Rural Sanitation of the Virginia State Board of Health. Mention is made of these facts in order to show the sources of the figures pertaining to the operating costs as given in the accompanying tables.

It will be noted that the three and a half years considered are divided into two periods. The first, from May 1, 1919, to June 30, 1921, comprises those months during which the cost of nearly all supplies was abnormally high. It was also the experimental period in this rural sanitary work—experimental as regards both methods and the men who operated the cars.

The second period begins with July 1, 1921, the time when prices of supplies began to decline. By this time, too, the county sanitary-officer problem had become somewhat stabilized, as is shown by the fact that 7 of the 11 sanitary officers engaged in rural health work in Virginia at the time of this report were so employed prior to July 1, 1921. The other 4, serving principally in new counties, have proved themselves efficient car operators as well as sanitary officers. Thus there are several factors that must be considered in accounting for the decline in operating costs seen when the two periods are compared.

It will be noted that the average monthly cost of operation for the first period is $46.06, and that for the second period it is $35.94, a decline of $10.13 per month. When the full three and a half years—357¾ car-operating months—are taken together, the average monthly cost is $41.69. (It is probable that for any new county health project of the type in effect in Virginia this last figure, $41.69, would be the safest to consider or adopt.) This $41.69 operating expense plus the $25 per month charged as rental for a replacement

fund makes the total average monthly cost of motor transportation for a Virginia county $66.69, or $800.28 per year.

Attention is invited to the very low cost of operation given for Smyth County. This should not be taken at its face value, for reference to the monthly mileage will show it to be low. This low cost was due principally to the fact that the expenses covered only the first seven months of the life of the car, and that the monthly mileage is only a little more than half the average, the work of the officer being confined in large part to town, village, and school sanitation during this period.

Attention is also called to the excessively high cost of operation of the automobile in Richmond County. The various items of expense speak for themselves, but no explanation can be offered other than the personal equation or a defective car. It is mentioned only in order to give some idea as to what is possible in car expenses.

An effort has been made to make the average costs more nearly correct by determining the exact time during which each car was in operation. This time was not always the same as the number of months in which sanitary work was conducted in a county. For various reasons it often happened that a county was without a car for several weeks, and these periods have been deducted wherever it was possible.

In regard to the roads over which the cars were operated, it may be said that they were of all types. There were the rough, rocky roads of the mountain counties, the rough-surface, macadamized roads of the valley, the sand-clay roads of certain sections, and the all-sand or all-clay roads that are often found in the State of Virginia.

Little can be said in common of the operators of these cars. Thirty men have been employed in the rural health work of this State. Eleven men are so employed at the time of this report, and it can be said of them that they are all reasonably careful and efficient operators. It is evident, however, that in the past some operators have been inexperienced or reckless, or both, else some of the high repair costs are difficult to explain.

As a solution of the problem of transportation for the sanitary officer, each county is given a touring car at the beginning of work. Twenty-five dollars per month is charged against the county budget of $2,500 per year as an automobile purchasing fund for replacements. Thirty-four automobiles were purchased between May 1, 1919, and March 1, 1923. Of these, 10 are in use, at the time of this report, 2 have been transferred to other departments of the State board of health and 22 have been sold. Of the 22 sold, 14 were sold at a profit to the automobile fund and 8 were sold at a loss; that is, in the case of the 14 former, the accrued rental from the $25 per month plus the amount allowed for the old car in a trade was more than the original cost of the car. The profit on these 14 cars was

$960.94, and the loss on 8 cars was $1,031.53, making a net loss on 22 cars of $70.59. None of the 10 cars in use at th time of this report is as much as a year old, and all are in good condition. This shows that the $25 per month rental charged is almost exactly correct, as the $70.59 loss over a period of 357¾ months would be at the rate of $0.197 per month. The maximum loss on any of the cars was $191.87. This was a car used in one of the roughest mountain sections of Virginia. The minimum loss was $16.01. The maximum profit on any one of the 14 cars was $207.77, and the minimum profit was $10.93. In case of the maximum loss given above, the car was sold for replacement at the end of 8 months' use, while that car which made the largest profit for the automobile fund was in use for 26⅓ months. It is seen that the longer the car can be used, the greater the possibility of a profit to the automobile fund, unless the upkeep becomes unduly high. The length of time that a car can be used depends, of course, upon the roads, the driver, and, to some extent, the car itself. It is obvious that for any car more expensive than the small car used, a proportionately higher rental will be necessary to take care of replacements unless the higher-priced car lasts longer.

Table I, giving itemized cost by months for Wythe County, shows the manner in which the total figures were obtained in preparing Table II. Table II was necessary for the preparation of Table IV, which shows the average monthly costs of the various items necessary for the upkeep of cars, the average cost per month, and the percentage of cost of the different items. Several other items of interest have been included in this table as a matter of record and explanation.

TABLE I.—*Wythe County.*

[Car new May 14, 1921; used entire time.]

| Date. | Gallons of gasoline. | Cost of gasoline. | Cost of oil and grease. | Cost of tires and tubes. | Cost of repairs. | Garage rent. | Remarks. |
|---|---|---|---|---|---|---|---|
| 1921. | | | | | | | |
| May 17–31 | 26¼ | $7.95 | $0.25 | $2.75 | $4.65 | $2.50 | Mr. W. |
| June | 57 | 16.82 | 1.63 | ..... | 1.50 | 3.00 | Mr. W. June 11, 1921. |
| July | 48 | 13.44 | .75 | ..... | ..... | 1.50 | Mr. St. C. July 10, 1922. |
| August | 98 | 25.55 | 1.50 | ..... | 8.81 | 3.00 | |
| September | 49½ | 12.38 | 1.00 | 35.59 | 1.15 | 3.00 | |
| October | 56 | 14.00 | 13.33 | 33.08 | 3.50 | 3.00 | |
| November | 40 | 10.65 | .60 | 4.30 | 1.85 | 3.00 | |
| December | 37 | 11.10 | .25 | ..... | 13.25 | 3.00 | |
| 1922. | | | | | | | |
| January | 37½ | 10.70 | .25 | ..... | 19.31 | 3.00 | |
| February | 46 | 12.88 | .25 | 3.75 | 6.40 | 3.00 | |
| March | 54 | 15.21 | .25 | 13.75 | 11.35 | 3.00 | |
| April | 53 | 15.34 | .70 | 36.53 | 3.25 | 1.00 | |
| May | 63 | 20.17 | 1.05 | ..... | 10.19 | 4.00 | |
| June | 88 | 28.27 | 2.95 | ..... | 5.45 | 8.00 | |
| July | 88 | 28.16 | .40 | 26.30 | 1.35 | 3.00 | |
| August | 73 | 22.18 | ..... | 1.90 | 1.25 | 3.00 | |
| September | 61 | 18.30 | 1.00 | 17.74 | 7.60 | 3.00 | |
| October | 50 | 14.90 | 2.30 | 1.90 | 4.80 | 3.00 | |
| Nov. 1–10 | 8 | 2.08 | .60 | ..... | ..... | 1.00 | |
| Total | 1,033½ | 300.08 | 29.06 | 177.59 | 105.66 | 57.00 | |

| | |
|---|---|
| Total expenditures | $669.39 |
| Total number of operating months | 17¾ |
| Average monthly cost of car | $37.54 |

TABLE II.—*Operating cost of automobiles in Virginia rural health work.*

MAY, 1919, TO JUNE 30, 1921.

| Name of county. | Number of months in operation. | Total cost of operation. | Total number of gallons of gasoline used. | Total number of miles covered. | Total cost of gasoline. | Total cost of grease and oil. | Total cost of tires and tubes. | Total cost of repairs. | Total garage rent. | Average number miles per month. | Average cost per mile. | Average cost per month for gasoline. | Average cost per month for grease and oil. | Average cost per month for tires and tubes. | Average cost per month for repairs. | Average cost per month for garage. | Average monthly cost of operating automobile. | Condition of automobile. | Condition of roads. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alleghany | 6 | $355.10 | 336 | 5,376 | $104.37 | $14.45 | $81.14 | $121.66 | $33.48 | 896 | $0.066 | $17.40 | $2.41 | $13.52 | $20.40 | $5.58 | $59.30 | New | Rough, mountain. |
| Bath | 21½ | 994.90 | 1,188½ | 19,016 | 402.63 | 71.06 | 174.90 | 335.31 | 11.00 | 884.5 | .052 | 18.73 | 3.31 | 8.14 | 15.50 | .51 | 46.27 | New to old | Do. |
| Charlotte | 8½ | 248.35 | 402 | 6,432 | 129.67 | 18.20 | 24.63 | 71.85 | 4.00 | 774.7 | .039 | 12.57 | 1.74 | 9.78 | 14.74 | .48 | 29.81 | New | Fair; sand, clay. |
| Chesterfield | 24 | 1,100.32 | 1,713½ | 27,416 | 511.73 | 81.36 | 222.78 | 275.95 | 8.50 | 1,142.3 | .040 | 21.33 | 3.39 | 9.28 | 11.50 | .35 | 45.97 | Old and new | Do. |
| Greensville | 22 | 603.25 | 1,072½ | 17,160 | 343.36 | 39.15 | 76.80 | 135.94 | 8.00 | 780 | .035 | 15.61 | 1.78 | 3.49 | 6.18 | .36 | 27.42 | New to old | Good; sand, clay. |
| Henry | 7 | 416.55 | 527½ | 8,440 | 171.82 | 26.99 | 80.15 | 137.59 | ..... | 1,205 | .049 | 24.55 | 3.86 | 11.45 | 19.66 | ..... | 59.51 | New, old, new | Fair, mountain. |
| Lunenburg | 23 | 999.55 | 1,184 | 18,944 | 380.47 | 52.73 | 237.30 | 296.05 | 33.00 | 823.2 | .052 | 16.54 | 2.29 | 10.32 | 12.87 | 1.43 | 43.46 | New to old | Fair; sand, clay. |
| Mecklenburg | 12 | 418.75 | 628 | 10,048 | 200.78 | 17.80 | 123.87 | 66.05 | 10.25 | 837.3 | .041 | 16.73 | 1.48 | 10.32 | 5.50 | .88 | 33.77 | .....do | Do. |
| Northumberland | 10⅔ | 731.28 | 852 | 13,644 | 298.11 | 31.31 | 168.83 | 232.53 | .50 | 1,260 | .054 | 27.53 | 2.89 | 15.59 | 21.47 | .05 | 68.99 | New | Poor, sandy. |
| Orange | 23½ | 1,076.92 | 1,015 | 16,240 | 309.65 | 35.45 | 341.25 | 348.59 | 42.00 | 683.3 | .066 | 13.04 | 1.49 | 14.37 | 14.68 | 1.77 | 45.34 | New to old | Fair, clay. |
| Richmond | 12 | 831.79 | 920 | 14,720 | 317.70 | 53.21 | 134.37 | 325.51 | 1.00 | 1,225 | .056 | 26.48 | 4.43 | 11.20 | 27.13 | .08 | 69.31 | Old | Poor, sandy. |
| Roanoke | 15 | 767.44 | 785 | 12,460 | 257.03 | 43.75 | 97.38 | 281.28 | 88.00 | 830.6 | .061 | 17.14 | 2.92 | 6.49 | 18.85 | 5.87 | 51.16 | New to old | Fair, hills. |
| Rockbridge | 6 | 349.60 | 300 | 4,800 | 92.79 | 9.00 | 79.32 | 116.99 | 51.50 | 800 | .072 | 15.47 | 1.50 | 13.22 | 19.50 | 8.58 | 58.27 | New | Fair, mountain. |
| Warren | 11¼ | 461.24 | 526 | 8,416 | 155.06 | 20.05 | 139.81 | 116.32 | 30.00 | 721.7 | .054 | 13.29 | 1.72 | 11.99 | 9.98 | 2.57 | 39.56 | Old | Fair, valley. |
| 14 counties | 203½ | 9,355.04 | 11,450 | [1]183,112 | 3,675.17 | 514.51 | 1,982.53 | 2,861.62 | 321.23 | 901.7 | .051 | 18.10 | 2.53 | 9.76 | 14.10 | 1.58 | 46.06 | ..... | |

JULY 1, 1921, TO DECEMBER 31, 1922.

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carroll | 13 | $614.97 | 744½ | 11,912 | $225.13 | $35.99 | $168.78 | $162.32 | $21.75 | 916.3 | $0.051 | $17.32 | $2.77 | $12.98 | $12.48 | $1.67 | $47.31 | New | Rough, mountain. |
| Charlotte | 18 | 603.38 | 981½ | 15,704 | 265.22 | 38.68 | 80.87 | 218.61 | ..... | 872.4 | .038 | 14.73 | 2.15 | 4.49 | 12.15 | ..... | 33.52 | .....do | Fair; sand, clay. |
| Chesterfield | 18 | 600.76 | 1,280 | 20,480 | 328.43 | 26.00 | 83.35 | 162.98 | ..... | 1,137.7 | .029 | 18.25 | 1.44 | 4.63 | 9.05 | ..... | 33.37 | Old to new | Do. |
| Grayson | 6⅔ | 278.72 | 423 | 6,768 | 142.95 | 13.06 | 49.13 | 37.83 | 5.75 | 1,016 | .041 | 21.61 | 1.98 | 7.44 | 10.18 | .85 | 41.85 | New to old | Good; sand, clay. |
| Greensville | 18 | 587.23 | 940½ | 15,048 | 245.09 | 46.30 | 77.40 | 203.44 | 15.00 | 836 | .039 | 13.61 | 2.57 | 4.30 | 11.30 | .83 | 32.63 | New | Rough, mountain. |
| Henry | 18½ | 586.26 | 1,093 | 17,488 | 284.87 | 28.77 | 145.90 | 122.22 | 4.50 | 945.3 | .033 | 15.40 | 1.55 | 7.89 | 6.61 | .25 | 31.68 | New, old, new | Fair, mountain. |
| Prince Edward | 7½ | 214.25 | 349 | 5,584 | 98.35 | 13.38 | 48.00 | 38.77 | 15.75 | 728.9 | .038 | 12.84 | 1.76 | 6.32 | 5.10 | 2.07 | 27.97 | New | Fair, clay. |
| Pulaski | 13 | 489.09 | 747 | 11,952 | 222.15 | 28.75 | 81.57 | 99.12 | 57.50 | 919.4 | .041 | 17.08 | 2.21 | 6.27 | 7.63 | 4.42 | 37.62 | New to old | Fair, hills. |
| Roanoke | 16⅔ | 761.23 | 995 | 15,920 | 277.70 | 50.80 | 90.94 | 291.79 | 50.00 | 955.5 | .048 | 16.67 | 3.05 | 5.46 | 17.51 | 3.00 | 45.69 | .....do | Do. |
| Smyth | 7⅔ | 153.91 | 254 | 4,064 | 71.37 | 13.65 | 36.84 | 16.65 | 15.40 | 530.5 | .037 | 9.58 | 1.78 | 4.81 | 2.17 | 2.01 | 20.09 | New | Do. |
| Wythe | 17⅔ | 669.39 | 1,033½ | 16,536 | 300.08 | 29.06 | 177.59 | 105.66 | 57.00 | 927.4 | .041 | 16.67 | 1.61 | 9.87 | 5.87 | 3.17 | 37.54 | New to old | Do. |
| 11 counties | 154⅓ | 5,559.19 | 8,841 | [1]141,456 | 2,461.34 | 324.44 | 1,040.37 | 1,489.39 | 242.65 | 914.6 | .039 | 15.91 | 2.10 | 6.73 | 9.63 | 1.57 | 35.94 | ..... | |

[1] Average, 16 miles to a gallon.

TABLE III.—*Average cost per mile per item.*

| Item. | First period. | Second period. | Both periods combined. |
|---|---|---|---|
| Gasoline | $0.0200 | $0.0173 | $0.0190 |
| Repairs | .0156 | .0105 | .0134 |
| Tires and tubes | .0108 | .0073 | .0093 |
| Grease and oil | .0029 | .0023 | .0026 |
| Garage | .0017 | .0016 | .0017 |
| Average total cost per mile | .051 | .039 | .046 |

TABLE IV.—*Average monthly costs and other items in the operation of automobiles in county sanitary work in Virginia.*

| Item. | First period, May 1, 1919, to June 30, 1921.[1] | Second period, July 1, 1921, to Dec. 31, 1922.[2] | Combined periods, May 1, 1919, to Dec. 31, 1922.[3] |
|---|---|---|---|
| Average cost per item: | | | |
| Gasoline per month | $18.10 | $15.91 | $17.16 |
| Repairs per month | 14.10 | 9.63 | 12.17 |
| Tires and tubes per month | 9.76 | 6.73 | 8.45 |
| Grease and oil per month | 2.53 | 2.10 | 2.35 |
| Garage rent per month | 1.58 | 1.57 | 1.57 |
| Average cost per month | 46.06 | 35.94 | 41.69 |
| Average cost per mile | .051 | .039 | .046 |
| Average gallons gas per month | 56.4 | 57 | 56.7 |
| Average miles per month | 901.7 | 914.6 | 907.2 |
| Percentage of cost: | | | |
| Gasoline | 39.3 | 44.3 | 41.4 |
| Repairs | 30.6 | 26.8 | 29.2 |
| Tires and tubes | 21.3 | 18.8 | 20.1 |
| Grease and oils | 5.4 | 5.8 | 5.6 |
| Garage rent | 3.4 | 4.3 | 3.7 |

[1] 203½ operating months; 14 counties.
[2] 154¼ operating months; 11 counties.
[3] 357¾ operating months; 20 counties; 35 touring cars; 30 different operators; all types of Virginia roads.

## SANITATION OF TOURIST CAMPS.

With constantly improving roads and the ever increasing use of the automobile in tourist travel, the problem of the intercommunity and also the interstate spread of disease, particularly from insanitary conditions in tourist camps, is one that is occupying the attention of health authorities all over the United States.

The Legislature of the State of Minnesota, in 1923, conferred broad general powers upon the State board of health with a view toward correcting present unsatisfactory and dangerous conditions, but failed to appropriate funds for this purpose.

The regulations adopted under authority of section 4640, General Statutes, 1913, as amended by chapter 227, laws of 1923, have the force of law. Chapter 227 grants power to regulate tourists' camps by adding a new paragraph to section 4640, which paragraph reads as follows:

The general sanitation of tourists' camps, summer hotels, and resorts in respect to water supplies, disposal of sewage, garbage, and other wastes, and the prevention and control of communicable diseases, and to that end may prescribe the respective duties of county and local health officers, and all county and local boards of health shall make such investigations and reports and obey such directions as the State board may require or give, and under supervision of the State board shall enforce such regulations.

The following regulations have been made by the State board of health in accordance with the authority granted:

230. Every person, organization, or municipality establishing or having control of a tourist camp shall provide such camp with an adequate water supply, toilet facilities, refuse disposal, camp site, as follows:

*Water supply.*—Every tourist camp shall be provided with an adequate supply of water of good sanitary quality from a source which will meet the requirements of the Minnesota State Board of Health as to sanitary location, construction, and operation. The water supply may be used from a municipal system provided such a system has been installed and is operated in such a manner as to meet with the requirements of this board. If a supply from an approved municipal source is not available, a supply shall be obtained from a well or spring or other source which must be located, constructed, and operated in accordance with the requirements of this board for a safe water supply. A water supply shall be easily obtainable from a faucet on the municipal system or from a well, spring, or other source, as above described, at a point not more than 400 feet from the portion of the tourist camp actually used by the tourists for camping purposes.

*Toilets.*—Water-flush toilets shall be provided wherever a municipal sewerage system is available or where conditions are such that a sewage-disposal plant or cesspool can be operated and water under pressure is available for the operation of water-flush toilets. Privies may be used where no municipal sewerage system is available or where the conditions are such that a sewage-disposal plant or cesspool can not be operated satisfactorily or where water under pressure is not available. These privies should be of the pit type and fly tight. All toilets and privies must be well ventilated and lighted and provided with some means of artificial lighting at night. These toilets and privies shall be maintained in a clean and sanitary condition. The contents of the privy vaults shall be sprinkled with dry earth, chlorinated lime, or lime at least twice each week during the period when the privies are in use. Toilets and privies shall be supplied with toilet paper at all times. Separate toilets shall be provided for men and women. The location of all toilets shall be plainly indicated by suitable signs. The toilets shall be located at a distance not more than 400 feet from the sleeping quarters.

*Refuse disposal.*—Suitable galvanized-iron garbage cans with covers shall be provided at convenient points for the disposal of garbage and refuse. The contents of these cans shall be removed daily, and the material disposed of in a suitable manner so as not to create a nuisance or provide a breeding place for flies. The cans shall be thoroughly washed.

*Camp site.*—Every tourist camp must be located on a site that is well drained and shall be selected with regard to its healthfulness.

Owing to failure of the legislature to provide funds, the State board of health has circularized the local health authorities of Minnesota in the following language:

It is necessary * * * that local boards of health pay special attention to tourist camp sanitation. When camps are located within the corporate limits of cities or villages in which organized boards of health exist, this duty may be discharged by the local health officer. If camps are not located within city or village limits, then

either the township board of health would be concerned or the county board of health in case the territory where the camp is located is not organized as a township. Town boards are not in a position to handle this problem satisfactorily, except, perhaps, in the larger cities. The best plan would be for the county health officer to assume responsibility for sanitation of all tourist camps in the county. This new duty would necessitate a special arrangement with the county board of health, which has "jurisdition over all unorganized towns * * * and * * * such other powers and duties in reference to the public health as the State board shall, by its published regulations, prescribe."

## THE DEMAND AMONG SANITARIANS AND PRACTICING PHYSICIANS FOR SUPPLEMENTAL ACADEMIC TRAINING.

In 1920 the Public Health Service conducted a venereal disease institute extending over a period of two weeks of intensive study. The following year 16 general public health institutes were held at various geographical centers, in cooperation with State departments of health. At the venereal disease institute there was an attendance of fully three times the number expected, and a large number were present at the general institutes.

These experiences have led the Public Health Service, at the suggestion of the Advisory Committee on the Education of Sanitarians, to send a circular letter of inquiry to members of the staffs of health departments, to public health nurses, and to practicing physicians in various parts of the country to determine what their interest might be in one or more institutes covering a period of six to eight weeks. Letters were mailed to approximately 3,500 employees of health departments, to about 6,000 public health nurses, and to the members of State medical societies in five States (approximately 9,500 practicing physicians). They were asked to express their opinions regarding (1) the need for supplemental academic training, (2) the season of the year at which they considered it would be wisest to hold public health institutes, (3) whether it would be more desirable, in their opinion, to have several institutes at various medical centers or one at Washington, and, finally, whether they could probably attend, would endeavor to attend, or wished additional information.

The accompanying table gives a summary of replies received to August 1, 1923. It will be observed that there were over 6,000 replies to 20,571 letters, and that of this number 5,746 express a belief that there exists a need for the type of public health institute proposed.

It is especially interesting to note that approximately 1,000 employees of health departments, 1,000 nurses, and 2,000 physicians, a total of over 4,000, say "I could probably attend an institute if it is not held too far from my home." The 1,970 physicians so expressing themselves represent the responses from only five States. Maine, Virginia, Ohio, Colorado, and Washington were chosen both because

they are well separated geographically and because mailing lists were easily available. It will be observed that a majority recommend the summer season in preference to other seasons of the year.

The deans of medical schools and leaders in the medical profession generally will doubtless be interested—and perhaps some will be surprised—to learn that there is so marked an interest in preventive medicine on the part of practicing physicians as the responses of the physicians of five States indicate.

Announcement will be made later of plans for public health summer schools to meet the demand for supplemental academic training revealed by this inquiry.

*Tabulation of replies from employees of health departments, nurses, and certain physicians to an inquiry regarding the advisability of establishing one or more public health institutes.*

| | Employees of health departments. | Nurses. | Physicians (5 States only). | Miscellaneous. | Total. |
|---|---|---|---|---|---|
| Number of letters sent out, minus those undelivered, etc. | 3,677 | 6,380 | 9,514 | ..... | 20,571 |
| Total number of cards returned | 1,534 | 1,422 | 3,017 | 150 | 6,123 |
| Believe need exists | 1,439 | 1,376 | 2,789 | 142 | 5,746 |
| Believe no need | 20 | 3 | 99 | ..... | 122 |
| No answer to this question | 75 | 43 | 129 | 8 | 255 |
| Favor medical centers | 1,323 | 1,294 | 2,468 | 139 | 5,224 |
| Favor Washington, D. C. | 205 | 149 | 508 | 13 | 875 |
| No answer | 57 | 34 | 104 | 6 | 203 |
| Season preferred— | | | | | |
| Summer | 688 | 851 | 1,409 | 60 | 3,008 |
| Fall | 272 | 150 | 602 | 16 | 1,040 |
| Winter | 146 | 85 | 184 | 8 | 423 |
| Spring | 294 | 147 | 353 | 14 | 808 |
| Miscellaneous answers | 18 | 21 | 75 | 2 | 116 |
| No answer | 224 | 236 | 484 | 55 | 999 |
| Attendance— | | | | | |
| Could probably attend | 1,156 | 1,024 | 1,970 | 72 | 4,222 |
| Would endeavor to attend | 1,116 | 1,013 | 1,946 | 81 | 4,156 |
| Further information wanted | 1,233 | 809 | 2,260 | 114 | 4,416 |
| No answer | 73 | 92 | 291 | 26 | 482 |

*Summary by sections of the country.*

| | Could probably attend. | Prefer summer. | | Could probably attend. | Prefer summer. |
|---|---|---|---|---|---|
| Northeastern States: | | | North Central States: | | |
| Employees of health departments | 224 | | Employees of health departments | 428 | |
| Nurses | 404 | | Nurses | 389 | |
| Physicians (two States only) | 494 | | Physicians (one State only) | 906 | |
| Miscellaneous | 31 | | Miscellaneous | 29 | |
| Total | 1,153 | 787 | Total | 1,752 | 1,342 |
| Southern States: | | | Western States: | | |
| Employees of health departments | 284 | | Employees of health departments | 220 | |
| Nurses | 102 | | Nurses | 129 | |
| Physicians (no physicians circularized) | 30 | | Physicians (two States only) | 540 | |
| Miscellaneous | 3 | | Miscellaneous | 9 | |
| Total | 419 | 244 | Total | 898 | 635 |
| | | | Grand total | 4,222 | 3,008 |

# DEATHS DURING WEEK ENDED AUGUST 18, 1923.

*Summary of information received by telegraph from industrial insurance companies for week ending August 18, 1923, and corresponding week of 1922. (From the Weekly Health Index, August 21, 1923, issued by the Bureau of the Census, Department of Commerce.)*

| | Week ended Aug. 21, 1923. | Corresponding week, 1922. |
|---|---|---|
| Policies in force | 54,688,492 | 49,817,308 |
| Number of death claims | 8,848 | 7,425 |
| Death claims per 1,000 policies in force, annual rate | 8.4 | 7.8 |

*Deaths from all causes in certain large cities of the United States during the week ended August 18, 1923, infant mortality, annual death rate, and comparison with corresponding week of 1922. (From the Weekly Health Index, August 21, 1923, issued by the Bureau of the Census, Department of Commerce.)*

| City. | Week ended Aug. 18, 1923. | | Annual death rate per 1,000, corresponding week, 1922. | Deaths under 1 year. | | Infant mortality rate, week ended Aug. 18, 1923.[2] |
|---|---|---|---|---|---|---|
| | Total deaths. | Death rate.[1] | | Week ended Aug. 18, 1923. | Corresponding week, 1922. | |
| Total | 6,004 | 11.0 | 10.6 | 974 | 854 | ..... |
| Akron, Ohio | 22 | 5.5 | 4.0 | 4 | 3 | 47 |
| Albany, N. Y.[3] | 26 | 11.6 | 12.6 | 3 | 1 | 66 |
| Atlanta, Ga | 64 | 15.0 | 20.6 | 10 | 3 | ..... |
| Baltimore, Md.[3] | 193 | 13.0 | 12.2 | 28 | 33 | 82 |
| Birmingham, Ala | 61 | 16.2 | 10.4 | 10 | 7 | ..... |
| Bridgeport, Conn | 28 | 10.2 | 10.2 | 6 | 1 | 83 |
| Buffalo, N. Y | 100 | 9.7 | 10.8 | 18 | 21 | 75 |
| Cambridge, Mass | 29 | 13.6 | 8.0 | 7 | 3 | 125 |
| Camden, N. J.[3] | 28 | 11.8 | 11.1 | 5 | 6 | 83 |
| Chicago, Ill | 537 | 9.7 | 9.4 | 92 | 103 | 83 |
| Cincinnati, Ohio | 103 | 13.2 | 13.3 | 14 | 7 | 92 |
| Cleveland, Ohio[3] | 184 | 10.8 | 8.4 | 26 | 24 | 71 |
| Columbus, Ohio | 57 | 11.4 | 13.0 | 8 | 7 | 83 |
| Dallas, Tex | 44 | 12.9 | 10.6 | 9 | 8 | ..... |
| Dayton, Ohio | 39 | 12.3 | 8.7 | 4 | 5 | 66 |
| Denver, Colo | 68 | 13.0 | 13.3 | 9 | 9 | ..... |
| Des Moines, Iowa | 28 | 10.4 | ..... | 3 | ..... | ..... |
| Detroit, Mich | 216 | 11.3 | 9.9 | 45 | 40 | 90 |
| Duluth, Minn | 21 | 10.3 | ..... | 2 | ..... | 46 |
| Erie, Pa | 21 | 9.7 | 9.0 | 7 | 1 | 142 |
| Fall River, Mass.[3] | 40 | 17.2 | 16.4 | 10 | 8 | 142 |
| Flint, Mich | 34 | 15.0 | ..... | 16 | ..... | 318 |
| Fort Worth, Tex | 23 | 8.3 | 8.6 | 2 | 2 | ..... |
| Grand Rapids, Mich | 26 | 9.3 | 9.1 | 4 | 3 | 63 |
| Houston, Tex | 33 | 11.1 | 10.1 | 4 | 4 | ..... |
| Indianapolis, Ind | 79 | 12.0 | 11.7 | 10 | 10 | 77 |
| Jacksonville, Fla | 37 | 10.3 | 11.2 | 6 | 3 | ..... |
| Jersey City, N. J | 65 | 11.0 | 12.6 | 7 | 19 | 47 |
| Kansas City, Mo | 76 | 11.3 | 11.1 | 16 | 10 | ..... |
| Los Angeles, Calif | 157 | 12.3 | 12.7 | 11 | 24 | 41 |
| Louisville, Ky | 75 | 15.2 | 11.0 | 13 | 1 | 140 |
| Lowell, Mass | 35 | 15.9 | 11.4 | 8 | 9 | 139 |
| Lynn, Mass | 18 | 9.1 | ..... | 3 | ..... | 79 |
| Memphis, Tenn | 73 | 22.4 | 18.0 | 15 | 6 | ..... |
| Milwaukee, Wis | 75 | 8.1 | 7.4 | 13 | 7 | 65 |
| Minneapolis, Minn | 71 | 9.0 | 11.2 | 8 | 8 | 43 |
| Nashville, Tenn.[3] | 40 | 17.2 | 14.7 | 1 | 6 | ..... |
| New Bedford, Mass | 32 | 12.8 | 11.9 | 9 | 7 | 141 |
| New Haven, Conn | 28 | 8.4 | 15.6 | 9 | 9 | 117 |
| New Orleans, La | 117 | 15.1 | 17.4 | 17 | 10 | ..... |
| New York, N. Y | 1,058 | 9.3 | 9.3 | 109 | 177 | 68 |
| Bronx Borough | 127 | 7.9 | 7.0 | 13 | 11 | 46 |
| Brooklyn Borough | 356 | 8.6 | 8.6 | 54 | 65 | 57 |
| Manhattan Borough | 457 | 10.5 | 10.7 | 91 | 82 | 88 |
| Queens Borough | 85 | 8.3 | 8.5 | 6 | 11 | 32 |
| Richmond Borough | 33 | 13.5 | 13.8 | 5 | 8 | 91 |
| Newark, N. J | 89 | 10.6 | 9.5 | 17 | 12 | 80 |

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1922. Cities left blank are not in the registration area for births.
[3] Deaths for week ended Friday, Aug. 17, 1923.

*Deaths from all causes in certain large cities of the United States during the week ended August 18, 1923, infant mortality, annual death rate, and comparison with corresponding week of 1922.* (*From the Weekly Health Index, August 21, 1923, issued by the Bureau of the Census, Department of Commerce*)—Continued.

| City. | Week ended Aug. 18, 1923. | | Annual death rate per 1,000, corresponding week, 1922. | Deaths under 1 year. | | Infant mortality rate, week ended Aug. 18, 1923. |
|---|---|---|---|---|---|---|
| | Total deaths. | Death rate. | | Week ended Aug. 18, 1923. | Corresponding week, 1922. | |
| Norfolk, Va. | 26 | 8.5 | 12.5 | 5 | 3 | 88 |
| Oakland, Calif. | 52 | 11.3 | 9.4 | 5 | 8 | 64 |
| Omaha, Nebr. | 52 | 13.3 | 10.9 | 6 | 6 | 65 |
| Paterson, N. J. | 17 | 6.4 | 10.2 | 4 | 4 | 64 |
| Philadelphia, Pa. | 418 | 11.3 | 10.7 | 56 | 71 | 73 |
| Pittsburgh, Pa. | 142 | 12.1 | 12.2 | 30 | 29 | 104 |
| Portland, Oreg. | 41 | 7.8 | 9.5 | 5 | 3 | 51 |
| Providence, R. I. | 58 | 12.5 | 10.4 | 12 | 8 | 98 |
| Richmond, Va. | 44 | 12.7 | 10.8 | 11 | 8 | 135 |
| Rochester, N. Y. | 53 | 8.7 | 10.0 | 7 | 14 | 55 |
| St. Louis, Mo. | 208 | 13.5 | 10.7 | 26 | 9 | ..... |
| St. Paul, Minn. | 42 | 9.1 | 9.8 | 4 | 8 | 37 |
| Salt Lake City, Utah [3] | 23 | 9.5 | 7.2 | 1 | 0 | 16 |
| San Antonio, Tex. | 53 | 15.0 | 13.8 | 12 | 8 | ..... |
| San Francisco, Calif. | 121 | 11.7 | 13.6 | 12 | 9 | 72 |
| Seattle, Wash. | 53 | 8.8 | 8.9 | 8 | 1 | 71 |
| Spokane, Wash. | 18 | 9.0 | 9.0 | 2 | 4 | 44 |
| Springfield, Mass. | 27 | 9.8 | 11.2 | 5 | 2 | 71 |
| Syracuse, N. Y. | 48 | 13.6 | 10.4 | 14 | 8 | 182 |
| Tacoma, Wash. | 9 | 4.6 | ..... | 1 | ..... | 25 |
| Toledo, Ohio. | 61 | 11.9 | 14.0 | 13 | 7 | 131 |
| Trenton, N. J. | 32 | 13.1 | 14.6 | 13 | 5 | 220 |
| Utica, N. Y. | 31 | 15.6 | ..... | 5 | ..... | 106 |
| Washington, D. C. | 118 | 14.1 | 12.8 | 13 | 12 | 74 |
| Wilmington, Del. | 29 | 12.8 | 14.4 | 11 | 2 | 224 |
| Worcester, Mass. | 33 | 9.0 | 12.7 | 5 | 10 | 57 |
| Yonkers, N. Y. | 25 | 12.1 | 11.4 | 4 | 6 | 87 |
| Youngstown, Ohio. | 20 | 7.9 | 5.1 | 6 | 2 | 81 |

[3] Deaths for week ended Friday, Aug. 17, 1923.

# PREVALENCE OF DISEASE.

*No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.*

## UNITED STATES.

### CURRENT STATE SUMMARIES.

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

**Reports for Week Ended Aug. 25, 1923.**

**ALABAMA.**

| | Cases. |
|---|---|
| Cerebrospinal meningitis | 2 |
| Chicken pox | 7 |
| Dengue | 1 |
| Diphtheria | 41 |
| Dysentery | 22 |
| Influenza | 7 |
| Malaria | 317 |
| Measles | 86 |
| Mumps | 1 |
| Ophthalmia neonatorum | 2 |
| Pellagra | 7 |
| Pneumonia | 11 |
| Scarlet fever | 9 |
| Smallpox | 2 |
| Tuberculosis | 37 |
| Typhoid fever | 91 |
| Whooping cough | 27 |

**ARIZONA.**

| | |
|---|---|
| Chicken pox | 1 |
| Diphtheria | 2 |
| Trachoma | 1 |
| Tuberculosis | 11 |

**ARKANSAS.**

| | |
|---|---|
| Cerebrospinal meningitis | 2 |
| Chicken pox | 12 |
| Diphtheria | 4 |
| Hookworm disease | 3 |
| Influenza | 8 |
| Malaria | 305 |
| Measles | 13 |
| Mumps | 4 |
| Ophthalmia neonatorum | 1 |
| Pellagra | 15 |
| Poliomyelitis | 1 |
| Scarlet fever | 2 |
| Smallpox | 1 |
| Trachoma | 2 |
| Tuberculosis | 16 |
| Typhoid fever | 43 |
| Whooping cough | 62 |

**CALIFORNIA.**

| | Cases. |
|---|---|
| Diphtheria | 116 |
| Influenza | 5 |
| Jaundice (epidemic) | 1 |
| Lethargic encephalitis | 2 |
| Measles | 153 |
| Poliomyelitis: | |
| Los Angeles | 1 |
| Redlands | 1 |
| San Fernando | 1 |
| Rabies—Fresno County | 1 |
| Scarlet fever | 39 |
| Smallpox | 16 |
| Typhoid fever | 22 |

**COLORADO.**

(Exclusive of Denver.)

| | |
|---|---|
| Chicken pox | 1 |
| Diphtheria | 9 |
| Impetigo contagiosa | 1 |
| Measles | 9 |
| Mumps | 1 |
| Poliomyelitis | 1 |
| Scarlet fever | 8 |
| Tuberculosis | 164 |
| Typhoid fever | 12 |
| Whooping cough | 3 |

**CONNECTICUT.**

| | |
|---|---|
| Cerebrospinal meningitis | 1 |
| Chicken pox | 2 |
| Conjunctivitis (infectious) | 1 |
| Diphtheria | 31 |
| Dysentery (bacillary) | 2 |
| German measles | 3 |
| Influenza | 1 |
| Lethargic encephalitis | 2 |
| Measles | 13 |
| Mumps | 1 |
| Paratyphoid fever | 2 |
| Pneumonia (lobar) | 3 |
| Poliomyelitis | 4 |
| Scarlet fever | 19 |

CONNECTICUT—continued.

| | Cases. |
|---|---|
| Tuberculosis (all forms) | 37 |
| Typhoid fever | 12 |
| Whooping cough | 52 |

FLORIDA.

| | |
|---|---|
| Diphtheria | 6 |
| Influenza | 1 |
| Malaria | 17 |
| Poliomyelitis | 1 |
| Scarlet fever | 2 |
| Smallpox | 1 |
| Typhoid fever | 3 |

GEORGIA.

| | |
|---|---|
| Diphtheria | 12 |
| Dysentery (amebic) | 2 |
| Hookworm disease | 15 |
| Influenza | 1 |
| Malaria | 87 |
| Measles | 41 |
| Pellagra | 1 |
| Pneumonia | 5 |
| Scarlet fever | 1 |
| Smallpox | 3 |
| Tetanus | 1 |
| Tuberculosis (all forms) | 15 |
| Typhoid fever | 42 |
| Whooping cough | 6 |

ILLINOIS.

| | |
|---|---|
| Cerebrospinal meningitis: | |
| Cook County | 1 |
| Edwards County | 1 |
| St. Clair County | 1 |
| Diphtheria: | |
| Cook County | 77 |
| Scattering | 24 |
| Influenza | 1 |
| Lethargic encephalitis (Cook County) | 4 |
| Pneumonia | 54 |
| Poliomyelitis: | |
| Cook County | 7 |
| Fayette County | 1 |
| Ford County | 1 |
| Lake County | 1 |
| Mason County | 1 |
| Scarlet fever: | |
| Cook County | 19 |
| Scattering | 28 |
| Smallpox | 4 |
| Typhoid fever: | |
| Cook County | 5 |
| Scattering | 35 |
| Whooping cough | 142 |

INDIANA

| | |
|---|---|
| Diphtheria | 20 |
| Influenza | 1 |
| Measles | 20 |
| Scarlet fever | 9 |
| Smallpox | 7 |
| Tuberculosis | 16 |
| Typhoid fever | 21 |

IOWA.

| | |
|---|---|
| Diphtheria | 16 |
| Poliomyelitis | 10 |
| Scarlet fever | 14 |
| Smallpox | 8 |
| Typhoid fever | 7 |

KANSAS.

| | Cases. |
|---|---|
| Cerebrospinal meningitis | 2 |
| Chicken pox | 1 |
| Diphtheria | 23 |
| Lethargic encephalitis | 1 |
| Malaria | 6 |
| Measles | 21 |
| Mumps | 3 |
| Pneumonia | 2 |
| Poliomyelitis | 13 |
| Scarlet fever | 37 |
| Smallpox | 6 |
| Tuberculosis | 47 |
| Typhoid fever | 47 |
| Whooping cough | 26 |

LOUISIANA.

| | |
|---|---|
| Diphtheria | 26 |
| Malaria | 20 |
| Measles | 2 |
| Scarlet fever | 1 |
| Smallpox | 2 |
| Tuberculosis | 19 |
| Typhoid fever | 32 |
| Whooping cough | 13 |

MAINE.

| | |
|---|---|
| Chicken pox | 4 |
| Diphtheria | 3 |
| German measles | 1 |
| Measles | 14 |
| Pneumonia | 3 |
| Scarlet fever | 16 |
| Smallpox | 3 |
| Tuberculosis | 16 |
| Typhoid fever | 5 |
| Whooping cough | 10 |

MARYLAND.

| | |
|---|---|
| Chicken pox | 3 |
| Diphtheria | 23 |
| Dysentery | 14 |
| Malaria | 6 |
| Measles | 24 |
| Mumps | 7 |
| Ophthalmia neonatorum | 1 |
| Pneumonia (all forms) | 18 |
| Scarlet fever | 26 |
| Tetanus | 1 |
| Tuberculosis | 38 |
| Typhoid fever | 85 |
| Vincent's angina | 2 |
| Whooping cough | 44 |

MASSACHUSETTS.

| | |
|---|---|
| Cerebrospinal meningitis | 3 |
| Chicken pox | 17 |
| Conjunctivitis (suppurative) | 16 |
| Diphtheria | 124 |
| German measles | 4 |
| Influenza | 3 |
| Lethargic encephalitis | 2 |
| Malaria | 1 |
| Measles | 32 |
| Mumps | 23 |
| Ophthalmia neonatorum | 20 |
| Pellagra | 1 |
| Pneumonia (lobar) | 24 |
| Poliomyelitis | 4 |

MASSACHUSETTS—continued.

| | Cases. |
|---|---|
| Scarlet fever | 56 |
| Septic sore throat | 1 |
| Tetanus | 2 |
| Trachoma | 1 |
| Tuberculosis (all forms) | 106 |
| Typhoid fever | 12 |
| Whooping cough | 61 |

MICHIGAN.

| | |
|---|---|
| Diphtheria | 101 |
| Measles | 44 |
| Pneumonia | 12 |
| Scarlet fever | 64 |
| Smallpox | 4 |
| Tuberculosis | 35 |
| Typhoid fever | 26 |
| Whooping cough | 115 |

MINNESOTA.

| | |
|---|---|
| Diphtheria | 63 |
| Influenza | 1 |
| Measles | 15 |
| Poliomyelitis | 6 |
| Scarlet fever | 87 |
| Smallpox | 7 |
| Tuberculosis | 70 |
| Typhoid fever | 6 |
| Whooping cough | 3 |

MISSISSIPPI.

| | |
|---|---|
| Diphtheria | 26 |
| Scarlet fever | 2 |
| Typhoid fever | 34 |

MISSOURI.

| | |
|---|---|
| Cerebrospinal meningitis | 1 |
| Chicken pox | 5 |
| Diphtheria | 50 |
| Influenza | 1 |
| Measles | 21 |
| Mumps | 5 |
| Poliomyelitis | 5 |
| Rabies | 4 |
| Scarlet fever | 50 |
| Smallpox | 2 |
| Tetanus | 2 |
| Trachoma | 3 |
| Tuberculosis | 88 |
| Typhoid fever | 30 |
| Whooping cough | 214 |

MONTANA.

| | |
|---|---|
| Diphtheria | 9 |
| Poliomyelitis: | |
| Boone | 1 |
| Missoula | 1 |
| Scarlet fever | 4 |

NEW JERSEY.

| | |
|---|---|
| Cerebrospinal meningitis | 2 |
| Chicken pox | 7 |
| Diphtheria | 51 |
| Influenza | 2 |
| Measles | 25 |
| Paratyphoid fever | 1 |
| Pneumonia | 24 |
| Poliomyelitis | 6 |
| Scarlet fever | 16 |
| Typhoid fever | 31 |
| Whooping cough | 60 |

NEW MEXICO.

| | Cases. |
|---|---|
| Conjunctivitis | 1 |
| Diphtheria | 9 |
| Influenza | 1 |
| Measles | 7 |
| Mumps | 1 |
| Pneumonia | 1 |
| Scarlet fever | 3 |
| Septic sore throat | 1 |
| Tuberculosis | 8 |
| Typhoid fever | 5 |
| Whooping cough | 2 |

NEW YORK.

(Exclusive of New York City.)

| | |
|---|---|
| Cerebrospinal meningitis | 2 |
| Diphtheria | 67 |
| Influenza | 2 |
| Lethargic encephalitis | 3 |
| Measles | 162 |
| Pneumonia | 47 |
| Poliomyelitis | 15 |
| Scarlet fever | 54 |
| Smallpox | 3 |
| Typhoid fever | 64 |
| Whooping cough | 191 |

NORTH CAROLINA.

| | |
|---|---|
| Cerebrospinal meningitis | 1 |
| Chicken pox | 6 |
| Diphtheria | 82 |
| Measles | 132 |
| Poliomyelitis | 2 |
| Scarlet fever | 43 |
| Septic sore throat | 1 |
| Smallpox | 18 |
| Typhoid fever | 64 |
| Whooping cough | 190 |

NORTH DAKOTA.

| | |
|---|---|
| Anthrax | 1 |
| Diphtheria | 6 |
| Measles | 2 |
| Scarlet fever | 12 |
| Trachoma | 1 |
| Typhoid fever | 1 |
| Whooping cough | 4 |

OREGON.

| | |
|---|---|
| Chicken pox | 3 |
| Diphtheria | 7 |
| Measles | 4 |
| Mumps | 2 |
| Pneumonia | 1 |
| Scarlet fever | 17 |
| Smallpox | 5 |
| Tuberculosis | 10 |
| Typhoid fever | 7 |
| Whooping cough | 2 |

SOUTH DAKOTA.

| | |
|---|---|
| Anthrax | 1 |
| Diphtheria | 6 |
| Measles | 2 |
| Scarlet fever | 12 |
| Trachoma | 1 |
| Typhoid fever | 1 |
| Whooping cough | 4 |

TEXAS.

| | Cases. |
|---|---|
| Chicken pox | 1 |
| Diphtheria | 15 |
| Dysentery | 2 |
| Influenza | 4 |
| Measles | 1 |
| Mumps | 5 |
| Paratyphoid fever | 2 |
| Pneumonia | 4 |
| Scarlet fever | 4 |
| Smallpox | 1 |
| Tuberculosis | 16 |
| Typhoid fever | 14 |
| Whooping cough | 31 |

VERMONT.

| | |
|---|---|
| Chicken pox | 18 |
| Diphtheria | 4 |
| Measles | 20 |
| Mumps | 1 |
| Poliomyelitis | 1 |
| Scarlet fever | 17 |
| Smallpox | 2 |
| Typhoid fever | 1 |
| Whooping cough | 34 |

VIRGINIA.

| | |
|---|---|
| Poliomyelitis: | |
| Arlington County | 1 |
| Caroline County | 2 |
| Shenandoah County | 1 |

WASHINGTON.

| | |
|---|---|
| Cerebrospinal meningitis | 1 |
| Chicken pox | 10 |
| Diphtheria | 13 |
| Measles | 11 |
| Mumps | 2 |
| Poliomyelitis | 1 |
| Scarlet fever | 11 |
| Smallpox | 6 |
| Tuberculosis | 3 |

WASHINGTON—continued.

| | Cases. |
|---|---|
| Typhoid fever: | |
| Everett | 19 |
| Scattering | 5 |
| Whooping cough | 31 |

WEST VIRGINIA.

| | |
|---|---|
| Diphtheria | 8 |
| Scarlet fever | 11 |
| Typhoid fever | 20 |

WISCONSIN.

| | |
|---|---|
| Milwaukee: | |
| Chicken pox | 6 |
| Diphtheria | 8 |
| Measles | 1 |
| Pneumonia | 1 |
| Poliomyelitis | 2 |
| Scarlet fever | 10 |
| Tuberculosis | 17 |
| Whooping cough | 36 |
| Scattering: | |
| Cerebrospinal meningitis | 1 |
| Chicken pox | 5 |
| Diphtheria | 44 |
| Influenza | 8 |
| Measles | 35 |
| Pneumonia | 1 |
| Poliomyelitis | 1 |
| Scarlet fever | 48 |
| Smallpox | 8 |
| Tuberculosis | 19 |
| Typhoid fever | 8 |
| Whooping cough | 77 |

WYOMING.

| | |
|---|---|
| Measles | 13 |
| Pneumonia | 1 |
| Rocky Mountain spotted fever | 1 |
| Scarlet fever | 1 |
| Typhoid fever | 5 |
| Whooping cough | 2 |

## Reports for Week Ended Aug. 18, 1923.

DISTRICT OF COLUMBIA.

| | Cases. |
|---|---|
| Measles | 2 |
| Scarlet fever | 1 |
| Tuberculosis | 22 |
| Typhoid fever | 8 |
| Whooping cough | 12 |

NEBRASKA.

| | |
|---|---|
| Chicken pox | 1 |
| Diphtheria | 23 |
| Influenza | 1 |
| Measles | 7 |
| Mumps | 2 |
| Poliomyelitis: | |
| Burt County | 1 |
| Omaha | 9 |
| Scarlet fever | 6 |
| Septic sore throat | 1 |

NEBRASKA—continued.

| | Cases. |
|---|---|
| Smallpox | 1 |
| Tuberculosis | 1 |
| Typhoid fever | 7 |
| Whooping cough | 17 |

NORTH DAKOTA.

| | |
|---|---|
| Chicken pox | 2 |
| Diphtheria | 5 |
| German measles | 1 |
| Measles | 23 |
| Pneumonia | 1 |
| Scarlet fever | 5 |
| Smallpox | 11 |
| Tuberculosis | 1 |
| Typhoid fever | 4 |
| Whooping cough | 9 |

## SUMMARY OF CASES REPORTED MONTHLY BY STATES.

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

| State. | Cerebrospinal meningitis. | Diphtheria. | Influenza. | Malaria. | Measles. | Pellagra. | Poliomyelitis. | Scarlet fever. | Smallpox. | Typhoid fever. |
|---|---|---|---|---|---|---|---|---|---|---|
| *June, 1923.* | | | | | | | | | | |
| Maine | 1 | 32 | 0 | ..... | 906 | ..... | ..... | 98 | 10 | 33 |
| *July, 1923.* | | | | | | | | | | |
| Arkansas | 3 | 9 | 17 | 1,053 | 328 | 152 | 2 | 7 | 31 | 169 |
| Illinois | 8 | 392 | 28 | 11 | 1,420 | 1 | 11 | 241 | 39 | 99 |
| Indiana | ..... | 64 | 8 | ..... | 498 | ..... | 1 | 75 | 97 | 35 |
| Louisiana | 2 | 44 | 2 | 118 | 138 | 32 | 3 | 2 | 13 | 102 |
| Maryland | 2 | 86 | 6 | 44 | 695 | ..... | 1 | 114 | ..... | 114 |
| Massachusetts | 11 | 486 | 3 | 3 | 1,035 | 5 | 8 | 441 | 2 | 58 |
| Minnesota | 2 | 205 | 3 | ..... | 327 | ..... | 4 | 367 | 80 | 31 |
| New York | 7 | 959 | 17 | 16 | 4,866 | ..... | 127 | 685 | 56 | 181 |
| North Dakota | ..... | 10 | ..... | ..... | 144 | ..... | ..... | 26 | 12 | 3 |
| Pennsylvania | 11 | 707 | ..... | 3 | 1,615 | 1 | 5 | 424 | 22 | 180 |
| South Carolina | ..... | 99 | ..... | 32 | 62 | 1 | ..... | 3 | 7 | 48 |
| Washington | ..... | 77 | ..... | ..... | 177 | ..... | 1 | 75 | 67 | 33 |
| West Virginia | 9 | 55 | 18 | ..... | 436 | ..... | 7 | 89 | 8 | 140 |

## Cases of Certain Communicable Diseases Reported for the Month of June, 1923, by State Health Officers.

| State. | Number of cases reported. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Chicken pox. | Diphtheria. | Measles. | Mumps. | Scarlet fever. | Smallpox. | Tuberculosis. | Typhoid fever. | Whooping cough. |
| Alabama | ..... | 28 | 1,680 | ..... | 26 | 45 | 162 | 206 | ..... |
| Arizona | 22 | 17 | 56 | 5 | 64 | 4 | [1] 265 | 11 | 9 |
| Arkansas | 30 | 18 | 537 | 37 | 7 | 37 | 41 | 30 | 141 |
| California | 617 | 581 | 3,712 | 85 | 517 | 93 | 615 | 75 | 463 |
| Colorado | 80 | 169 | 1,090 | 64 | 77 | 1 | 460 | 21 | 162 |
| Connecticut | 238 | 136 | 556 | 80 | 230 | 3 | 149 | 9 | 262 |
| Delaware | 12 | 16 | 71 | ..... | 33 | ..... | 16 | 4 | 22 |
| District of Columbia | 81 | 19 | 429 | ..... | 56 | ..... | ..... | 13 | 82 |
| Florida | 15 | 18 | 378 | 5 | 4 | 18 | 104 | 54 | 75 |
| Georgia [2] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Idaho | 1 | 2 | 3 | ..... | 2 | 4 | 1 | ..... | 7 |
| Illinois | 889 | 532 | 6,320 | 681 | 475 | 128 | 1,349 | 68 | 892 |
| Indiana | ..... | 129 | 3,895 | ..... | 199 | 236 | 147 | 33 | ..... |
| Iowa | 32 | 61 | 407 | 10 | 166 | 103 | 15 | [3] | 82 |
| Kansas | 114 | 90 | 1,698 | 128 | 108 | 33 | 235 | 35 | 402 |
| Kentucky [2] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Louisiana | 5 | 42 | 628 | 8 | 5 | 20 | 152 | 110 | 459 |
| Maine [5] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Maryland | 294 | 110 | 2,068 | 116 | 329 | 1 | 257 | 51 | 524 |
| Massachusetts | 699 | 613 | 2,985 | 729 | 1,057 | ..... | 651 | 44 | 708 |
| Michigan | 637 | 462 | 10,219 | 268 | 928 | 106 | 524 | 49 | 867 |
| Minnesota | 202 | 169 | 1,272 | ..... | 432 | 88 | 273 | 29 | 77 |
| Mississippi | 146 | 30 | 1,668 | 61 | 7 | 13 | 259 | 173 | 1,481 |
| Missouri [2] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Montana | 32 | 12 | 101 | ..... | 60 | 25 | 60 | 2 | 21 |
| Nebraska | 11 | 41 | 51 | 47 | 35 | 9 | 3 | 3 | 96 |
| Nevada [4] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| New Hampshire [4] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| New Jersey | 749 | 345 | 2,442 | ..... | 345 | 1 | 444 | 65 | 428 |
| New Mexico | 3 | 83 | 154 | 8 | 22 | 1 | 38 | 8 | 13 |
| New York | 2,166 | 1,099 | 12,246 | 1,192 | 1,539 | 15 | 1,841 | 126 | 1,241 |
| North Carolina | 198 | 73 | 5,457 | ..... | 60 | 239 | ..... | 148 | 1,673 |
| North Dakota | 32 | 26 | 161 | ..... | 52 | 33 | 25 | 1 | 41 |
| Ohio | 770 | 413 | 4,424 | 97 | 914 | 197 | 573 | 80 | 1,026 |
| Oklahoma [5] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Oregon | 80 | 54 | 27 | 14 | 52 | 73 | 42 | 13 | 43 |
| Pennsylvania | 1,399 | 835 | 6,261 | 404 | 799 | 33 | 563 | 144 | 1,378 |
| Rhode Island | 14 | 55 | 167 | 7 | 35 | ..... | 48 | 2 | 26 |
| South Carolina | 21 | 75 | 145 | 3 | 8 | 26 | 21 | 101 | 69 |

[1] Many old cases reported at hospitals at Tucson and Prescott.
[2] Reports received weekly.
[3] Not notifiable.
[4] Reports received annually.
[5] Reports not received at time of going to press.

## Cases of Certain Communicable Diseases Reported for the Month of June, 1923, by State Health Officers—Continued.

| State. | Number of cases reported. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Chicken pox. | Diphtheria. | Measles. | Mumps. | Scarlet fever. | Smallpox. | Tuberculosis. | Typhoid fever. | Whooping cough. |
| South Dakota | 41 | 32 | 496 | ..... | 79 | 2 | 21 | 5 | 16 |
| Tennessee [4] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Texas [3] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Utah [4] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Vermont | 63 | 16 | 924 | 84 | 37 | 6 | 54 | 4 | 119 |
| Virginia | 242 | 81 | 4,632 | ..... | 52 | 33 | 301 | 152 | ..... |
| Washington | 208 | 88 | 352 | 80 | 112 | 113 | 238 | 26 | 373 |
| West Virginia | 69 | 80 | 2,009 | ..... | 57 | 38 | 82 | 97 | 187 |
| Wisconsin | 306 | 169 | 4,096 | ..... | 873 | 102 | 180 | 10 | 301 |
| Wyoming | 5 | 1 | 97 | 2 | 8 | 1 | 1 | 1 | 7 |

[3] Reports received weekly. [4] Reports received annually.

## Reported Cases per 1,000 Population (Annual Basis) for the Month of June, 1923.

| State. | Case rates per 1,000 population. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Chicken pox. | Diphtheria. | Measles. | Mumps. | Scarlet fever. | Smallpox. | Tuberculosis. | Typhoid fever. | Whooping cough. |
| Alabama | ..... | 0.14 | 8.43 | ..... | 0.13 | 0.23 | 0.81 | 1.03 | ..... |
| Arizona | 0.70 | .54 | 1.79 | 0.16 | 2.04 | .13 | [1] 8.46 | .35 | 0.29 |
| Arkansas | .20 | .12 | 3.60 | .25 | .05 | .25 | .27 | .20 | .94 |
| California | 1.97 | 1.86 | 11.87 | .27 | 1.65 | .30 | 1.97 | .24 | 1.48 |
| Colorado | .98 | 2.08 | 13.39 | .79 | .95 | .01 | 5.65 | .26 | 1.99 |
| Connecticut | 1.96 | 1.12 | 4.58 | .66 | 1.90 | .02 | 1.23 | .07 | 2.16 |
| Delaware | .63 | .84 | 3.75 | ..... | 1.74 | ..... | .84 | .21 | 1.16 |
| District of Columbia | 2.07 | .49 | 10.97 | ..... | 1.43 | ..... | ..... | .33 | 2.10 |
| Florida | .17 | .21 | 4.40 | .06 | .05 | .21 | 1.21 | .63 | .87 |
| Georgia [3] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Idaho | .03 | .05 | .08 | ..... | .05 | .10 | .03 | ..... | .18 |
| Illinois | 1.59 | .95 | 11.32 | 1.22 | .85 | .23 | 2.42 | .12 | 1.60 |
| Indiana | ..... | .52 | 15.73 | ..... | .80 | .95 | .59 | .13 | ..... |
| Iowa | .16 | .30 | 2.01 | .05 | .82 | .51 | .07 | [2] | .40 |
| Kansas | .77 | .61 | 11.49 | .87 | .73 | .22 | 1.59 | .24 | 2.72 |
| Kentucky [3] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Louisiana | .03 | .28 | 4.13 | .05 | .03 | .13 | 1.00 | .72 | 3.02 |
| Maine [4] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Maryland | 2.38 | .89 | 16.71 | .94 | 2.66 | .01 | 2.08 | .41 | 4.24 |
| Massachusetts | 2.11 | 1.85 | 9.02 | 2.20 | 3.19 | ..... | 1.97 | .13 | 2.14 |
| Michigan | 1.95 | 1.41 | 31.26 | .82 | 2.84 | .32 | 1.60 | .15 | 2.65 |
| Minnesota | .98 | .82 | 6.19 | ..... | 2.10 | .43 | 1.33 | .14 | .37 |
| Mississippi | .99 | .20 | 11.35 | .42 | .05 | .09 | 1.76 | 1.18 | 10.08 |
| Missouri [3] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Montana | .64 | .24 | 2.01 | ..... | 1.19 | .50 | 1.19 | .04 | .42 |
| Nebraska | .10 | .37 | .47 | .43 | .32 | .08 | .03 | .03 | .88 |
| Nevada [5] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| New Hampshire [5] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| New Jersey | 2.70 | 1.24 | 8.79 | ..... | 1.24 | .00 | 1.60 | .23 | 1.54 |
| New Mexico | .10 | 2.71 | 5.03 | .26 | .72 | .03 | 1.24 | .26 | .42 |
| New York | 2.43 | 1.23 | 13.74 | 1.34 | 1.73 | .02 | 2.07 | .14 | 1.39 |
| North Carolina | .90 | .33 | 24.72 | ..... | .27 | 1.08 | ..... | .67 | 7.58 |
| North Dakota | .58 | .47 | 2.91 | ..... | .94 | .60 | .45 | .02 | .74 |
| Ohio | 1.53 | .82 | 8.80 | .19 | 1.82 | .39 | 1.14 | .16 | 2.04 |
| Oklahoma [4] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Oregon | 1.18 | .80 | .40 | .21 | .77 | 1.08 | .62 | .19 | .64 |
| Pennsylvania | 1.87 | 1.12 | 8.37 | .54 | 1.07 | .04 | .75 | .19 | 1.84 |
| Rhode Island | .27 | 1.07 | 3.24 | .14 | .68 | ..... | .93 | .04 | .50 |
| South Carolina | .15 | .52 | 1.01 | .02 | .06 | .18 | .15 | .70 | .48 |
| South Dakota | .76 | .59 | 9.21 | ..... | 1.47 | .04 | .39 | .09 | .30 |
| Tennessee [5] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Texas [3] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Utah [5] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Vermont | 2.18 | .55 | 32.01 | 2.91 | 1.28 | .21 | 1.87 | .14 | 4.12 |
| Virginia | 1.23 | .41 | 23.50 | ..... | .26 | .17 | 1.53 | .77 | ..... |
| Washington | 1.76 | .75 | 2.99 | .68 | .95 | .96 | 2.02 | .22 | 3.16 |
| West Virginia | .54 | .63 | 15.76 | ..... | .45 | .30 | .64 | .76 | 1.47 |
| Wisconsin | 1.36 | .75 | 18.19 | ..... | 3.88 | .45 | .80 | .04 | 1.34 |
| Wyoming | .29 | .06 | 5.57 | .11 | .46 | .06 | .06 | .06 | .40 |

[1] Many old cases reported at hospitals at Tucson and Prescott.
[2] Reports received weekly.
[3] Not notifiable.
[4] Reports not received at time of going to press.
[5] Reports received annually.

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923.

### ANTHRAX.

| City. | Cases. | Deaths. |
|---|---|---|
| Florida: | | |
| Tampa | 1 | ..... |

### CEREBROSPINAL MENINGITIS.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding week of the years 1915 to 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

| City. | Median for previous years. | Week ended Aug. 11, 1923. | | City. | Median for previous years. | Week ended Aug. 11, 1923. | |
|---|---|---|---|---|---|---|---|
| | | Cases. | Deaths. | | | Cases. | Deaths. |
| California: | | | | New York: | | | |
| Los Angeles | 0 | 1 | ..... | Buffalo | 0 | ..... | 2 |
| Pasadena | 0 | ..... | 1 | New York | 4 | 3 | 1 |
| Georgia: | | | | North Carolina: | | | |
| Atlanta | 0 | 1 | 1 | Wilmington | 0 | 1 | 1 |
| Savannah | 0 | 1 | 1 | Tennessee: | | | |
| Illinois: | | | | Memphis | 0 | 1 | ..... |
| Chicago | 1 | 1 | 1 | Texas: | | | |
| Maryland: | | | | El Paso | 0 | ..... | 1 |
| Baltimore | 0 | 1 | ..... | Utah: | | | |
| Massachusetts: | | | | Salt Lake City | 0 | ..... | 1 |
| Boston | 1 | 1 | ..... | Virginia: | | | |
| Michigan: | | | | Norfolk | 0 | 2 | ..... |
| Hamtramck | 0 | ..... | 1 | West Virginia: | | | |
| New Jersey: | | | | Huntington | 0 | ..... | 1 |
| Newark | 0 | 1 | 1 | | | | |

### DENGUE.

| City. | Cases. | Deaths. |
|---|---|---|
| Texas: | | |
| Galveston | 1 | ..... |

### DIPHTHERIA.

See p. 2033; also Current State summaries, p. 2022, and Monthly summaries by States, p. 2026.

### INFLUENZA.

| City. | Cases. | | Deaths, week ended Aug. 11, 1923. | City. | Cases. | | Deaths, week ended Aug. 11, 1923. |
|---|---|---|---|---|---|---|---|
| | Week ended Aug. 12, 1922. | Week ended Aug. 11, 1923. | | | Week ended Aug. 12, 1922. | Week ended Aug. 11, 1923. | |
| California: | | | | New Jersey: | | | |
| Long Beach | 0 | 0 | 1 | Newark | 1 | 2 | ..... |
| Los Angeles | 3 | 2 | ..... | New York: | | | |
| Connecticut: | | | | New York | 5 | 4 | 1 |
| New London | 0 | 1 | ..... | Ohio: | | | |
| District of Columbia: | | | | Cincinnati | 0 | ..... | 1 |
| Washington | ..... | 2 | 1 | Pennsylvania: | | | |
| Georgia: | | | | Pittsburgh | 0 | 0 | 1 |
| Atlanta | 0 | 2 | ..... | South Dakota: | | | |
| Illinois: | | | | Sioux Falls | 0 | 2 | 0 |
| Chicago | 4 | 1 | ..... | Texas: | | | |
| Peoria | 0 | 0 | 1 | San Antonio | 0 | 5 | ..... |
| Springfield | 0 | 1 | 1 | West Virginia: | | | |
| Indiana: | | | | Charleston | 0 | 4 | ..... |
| Indianapolis | 0 | 0 | 1 | | | | |
| Massachusetts: | | | | | | | |
| Brookline | 0 | 1 | ..... | | | | |
| Springfield | 0 | 1 | ..... | | | | |

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923—Continued.

### MALARIA.

| City. | Cases. | Deaths. | City. | Cases. | Deaths. |
|---|---|---|---|---|---|
| Alabama: | | | Massachusetts: | | |
| Birmingham | 20 | | Boston | 1 | |
| Dothan | 10 | | Missouri: | | |
| Montgomery | 2 | | St. Louis | 1 | |
| Arkansas: | | | New Jersey: | | |
| Little Rock | 2 | | Newark | 1 | |
| California: | | | New York: | | |
| Bakersfield | | 1 | Newburgh | 1 | |
| Los Angeles | 1 | | New York | 1 | |
| Sacramento | | 1 | Ohio: | | |
| Florida: | | | Cincinnati | 2 | |
| Tampa | 4 | | Tennessee: | | |
| Georgia: | | | Memphis | 25 | |
| Atlanta | 1 | | Nashville | 1 | |
| Brunswick | 8 | | Texas: | | |
| Macon | 4 | | Dallas | 1 | 2 |
| Rome | 3 | | Houston | | 1 |
| Maryland: | | | | | |
| Baltimore | 2 | | | | |

### MEASLES.

See p. 2033; also Current State summaries, p. 2022, and Monthly summaries by States, p. 2026.

### PELLAGRA.

| City. | Cases. | Deaths. | City. | Cases. | Deaths. |
|---|---|---|---|---|---|
| Alabama: | | | Massachusetts: | | |
| Birmingham | 1 | | Lowell | 1 | 1 |
| Montgomery | | 1 | North Carolina: | | |
| California: | | | Raleigh | | 1 |
| Los Angeles | | 1 | South Carolina: | | |
| Georgia: | | | Columbia | | 2 |
| Atlanta | | 2 | Virginia: | | |
| | | | Charlottesville | | 1 |

### PNEUMONIA (ALL FORMS).

| | | | | | |
|---|---|---|---|---|---|
| Alabama: | | | Indiana—Continued. | | |
| Birmingham | 2 | 3 | Indianapolis | | 4 |
| Dothan | 1 | | Michigan City | | 1 |
| Mobile | | 1 | Kansas: | | |
| Arkansas: | | | Fort Scott | | 1 |
| Little Rock | 1 | | Kansas City | 1 | |
| California: | | | Topeka | 4 | 1 |
| Long Beach | | 2 | Wichita | | 2 |
| Los Angeles | 27 | 9 | Kentucky: | | |
| Oakland | | 1 | Covington | | 2 |
| Riverside | | 1 | Lexington | | 2 |
| Sacramento | | 1 | Louisiana: | | |
| San Francisco | 13 | 6 | New Orleans | 7 | 6 |
| Santa Ana | | 1 | Maryland: | | |
| Stockton | | 1 | Baltimore | | 8 |
| Connecticut: | | | Massachusetts: | | |
| Hartford | 2 | 1 | Arlington | 2 | 1 |
| New Haven | | 4 | Beverly | | 1 |
| District of Columbia: | | | Boston | | 8 |
| Washington | | 12 | Cambridge | | 2 |
| Georgia: | | | Chelsea | | 2 |
| Atlanta | 7 | 7 | Clinton | 1 | |
| Brunswick | | 1 | Everett | 1 | |
| Illinois: | | | Holyoke | | 1 |
| Alton | 1 | | Lawrence | | 1 |
| Aurora | | 1 | Lowell | | 1 |
| Bloomington | | 1 | Lynn | | 1 |
| Chicago | 74 | 21 | New Bedford | 2 | |
| Peoria | | 1 | Newton | | 2 |
| Quincy | | 1 | Pittsfield | | 1 |
| Rockford | | 1 | Waltham | 1 | |
| Springfield | | 2 | Worcester | | 3 |
| Indiana: | | | Michigan: | | |
| Bloomington | | 1 | Alpena | 1 | |
| East Chicago | | 1 | Ann Arbor | 1 | |
| Fort Wayne | | 1 | Flint | | 3 |
| Gary | | 2 | Grand Rapids | | 1 |

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923—Continued.

### PNEUMONIA (ALL FORMS)—Continued.

| City. | Cases. | Deaths. |
|---|---|---|
| Michigan—Continued. | | |
| Hamtramck | | 2 |
| Highland Park | 2 | |
| Muskegon | | 1 |
| Pontiac | | 1 |
| Minnesota: | | |
| Duluth | 2 | |
| St. Paul | | 6 |
| Missouri: | | |
| Cape Girardeau | | 1 |
| St. Joseph | | 1 |
| Springfield | | 3 |
| Montana: | | |
| Missoula | | 1 |
| Nebraska: | | |
| Lincoln | | 1 |
| Omaha | | 4 |
| New Hampshire: | | |
| Manchester | | 1 |
| Nashua | | 1 |
| New Jersey: | | |
| Asbury Park | 1 | |
| Atlantic City | | 2 |
| Englewood | | 1 |
| Harrison | 1 | |
| Morristown | | 2 |
| Newark | 11 | 5 |
| Orange | | 1 |
| Paterson | 2 | |
| New York: | | |
| Albany | 4 | |
| Buffalo | 5 | 1 |
| Elmira | 2 | 1 |
| Lackawanna | 1 | |
| New York | 73 | 64 |
| Rochester | 7 | 1 |
| Schenectady | 2 | 1 |
| Syracuse | 3 | 2 |
| Watertown | | 1 |
| North Carolina: | | |
| Greensboro | | 2 |
| Ohio: | | |
| Bucyrus | | 1 |
| Canton | | 1 |
| Cincinnati | 19 | 8 |
| Cleveland | 13 | 10 |
| Ohio—Continued. | | |
| Dayton | 1 | |
| East Cleveland | 1 | |
| Hamilton | | 1 |
| Springfield | | 2 |
| Toledo | | 2 |
| Youngstown | | 2 |
| Oklahoma: | | |
| Oklahoma | | 2 |
| Oregon: | | |
| Portland | | 3 |
| Pennsylvania: | | |
| Philadelphia | | 21 |
| Pittsburgh | | 18 |
| Rhode Island: | | |
| Newport | | 1 |
| South Carolina: | | |
| Columbia | | 2 |
| South Dakota: | | |
| Sioux Falls | | 1 |
| Tennessee: | | |
| Memphis | | 3 |
| Nashville | | 2 |
| Texas: | | |
| Beaumont | | 1 |
| Dallas | | 1 |
| Galveston | | 1 |
| Houston | | 1 |
| San Antonio | | 1 |
| Waco | | 1 |
| Utah: | | |
| Provo | | 1 |
| Salt Lake City | | 4 |
| Virginia: | | |
| Alexandria | | 1 |
| Norfolk | | 2 |
| Petersburg | | 1 |
| Richmond | | 3 |
| West Virginia: | | |
| Charleston | | 1 |
| Huntington | | 1 |
| Wheeling | | 1 |
| Wisconsin: | | |
| Kenosha | | 1 |
| Superior | 1 | |

### POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median for previous years" gives the median number of cases reported during the corresponding week of the years 1915 to 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

| City. | Median for previous years. | Week ended Aug. 11, 1923. | |
|---|---|---|---|
| | | Cases. | Deaths. |
| Alabama: | | | |
| Birmingham | 0 | 1 | |
| California: | | | |
| Los Angeles | 0 | 1 | |
| Illinois: | | | |
| Chicago | 5 | 2 | |
| Iowa: | | | |
| Council Bluffs | 0 | 1 | |
| Kansas: | | | |
| Topeka | 0 | 7 | |
| Massachusetts: | | | |
| Boston | 2 | 1 | |
| Newton | 0 | 1 | 1 |
| Michigan: | | | |
| Ann Arbor | 0 | 1 | 0 |
| Missouri: | | | |
| St. Louis | 0 | 2 | |
| Nebraska: | | | |
| Lincoln | 0 | 1 | |
| Omaha | 0 | 4 | 1 |
| New Jersey: | | | |
| Bayonne | 0 | 1 | |
| Orange | 0 | 1 | 1 |
| New York: | | | |
| Albany | 0 | 1 | |
| Mount Vernon | 0 | 2 | |
| New York | 5 | 21 | 2 |
| Newburgh | 0 | 1 | |
| Syracuse | 0 | 3 | |
| North Carolina: | | | |
| Greensboro | | 1 | |
| Ohio: | | | |
| Cleveland | 2 | 1 | |
| Oklahoma: | | | |
| Tulsa | 0 | 1 | |
| Pennsylvania: | | | |
| Wilkes-Barre | 0 | 1 | |
| Rhode Island: | | | |
| Providence | 0 | 1 | |
| Vermont: | | | |
| Burlington | 0 | 1 | |

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923—Continued.

### RABIES IN ANIMALS.

| City. | Cases. | City. | Cases. |
|---|---|---|---|
| California: | | Tennessee: | |
| Long Beach | 2 | Memphis | 1 |
| Los Angeles | 11 | Texas: | |
| Pasadena | 1 | Dallas | 1 |

### RABIES IN MAN.

| City. | Cases. | Deaths. |
|---|---|---|
| Montana: | | |
| Billings | 1 | 1 |

### SCARLET FEVER.

See p. 2033; also Current State summaries, p. 2022, and Monthly summaries by States p. 2026.

### SMALLPOX.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding week of the years 1915 to 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

| City. | Median for previous years. | Week ended Aug. 11, 1923. | | City. | Median for previous years. | Week ended Aug. 11, 1923. | |
|---|---|---|---|---|---|---|---|
| | | Cases. | Deaths. | | | Cases. | Deaths |
| California: | | | | North Carolina: | | | |
| Long Beach | 0 | 2 | 1 | Winston-Salem | 0 | 3 | ..... |
| Los Angeles | 0 | 11 | ..... | Ohio: | | | |
| Georgia: | | | | Cleveland | 0 | 8 | ..... |
| Atlanta | 2 | 17 | ..... | Findlay | 0 | 1 | ..... |
| Illinois: | | | | Toledo | 1 | 2 | ..... |
| Chicago | 0 | 2 | ..... | Oklahoma: | | | |
| Rock Island | 0 | 3 | ..... | Tulsa | 0 | 1 | ..... |
| Indiana: | | | | Oregon: | | | |
| Gary | 0 | 3 | ..... | Portland | 2 | 3 | ..... |
| Huntington | 0 | 1 | ..... | Pennsylvania: | | | |
| Indianapolis | 0 | 1 | ..... | Chester | 0 | 1 | ..... |
| Muncie | 0 | 3 | ..... | Texas: | | | |
| Michigan: | | | | Fort Worth | 0 | 1 | ..... |
| Holland | 0 | 2 | ..... | Vermont: | | | |
| Jackson | 0 | 2 | ..... | Burlington | 0 | 1 | ..... |
| Minnesota: | | | | Washington: | | | |
| Duluth | 0 | 2 | ..... | Seattle | 1 | 1 | ..... |
| Hibbing | 0 | 1 | ..... | Spokane | 1 | 2 | ..... |
| Minneapolis | 3 | 3 | ..... | Tacoma | 0 | 1 | ..... |
| St. Paul | 2 | 1 | ..... | Vancouver | 0 | 1 | ..... |
| Winona | 0 | 1 | ..... | Wisconsin: | | | |
| Montana: | | | | Milwaukee | 1 | 3 | ..... |
| Anaconda | 0 | 1 | ..... | | | | |
| New York: | | | | | | | |
| Buffalo | 0 | 3 | ..... | | | | |
| Niagara Falls | 0 | 7 | ..... | | | | |

### TETANUS.

| City. | Cases. | Deaths. | City. | Cases. | Deaths. |
|---|---|---|---|---|---|
| California: | | | Kentucky: | | |
| Los Angeles | 1 | 1 | Owensboro | 1 | ..... |
| Connecticut: | | | Ohio: | | |
| New Haven | ..... | 1 | Cleveland | ..... | 1 |
| Georgia: | | | Pennsylvania: | | |
| Brunswick | 1 | ..... | Philadelphia | 1 | 1 |
| Illinois: | | | South Carolina: | | |
| Chicago | 1 | ..... | Charleston | ..... | 1 |
| Kansas: | | | | | |
| Hutchinson | 1 | ..... | | | |

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923—Continued.

### TUBERCULOSIS.

See p. 2033; also Current State summaries, p. 2022.

### TYPHOID FEVER.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding week of the years 1915 to 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

| City. | Median for previous years. | Week ended Aug. 11, 1923. | |
|---|---|---|---|
| | | Cases. | Deaths. |
| **Alabama:** | | | |
| Birmingham | 8 | 8 | ..... |
| Dothan | 0 | 2 | 0 |
| Montgomery | 1 | 7 | ..... |
| Tuscaloosa | 0 | 3 | ..... |
| **Arkansas:** | | | |
| Little Rock | 0 | 1 | ..... |
| North Little Rock | 1 | 1 | ..... |
| **California:** | | | |
| Los Angeles | 5 | 2 | ..... |
| Pasadena | 0 | ..... | 1 |
| Sacramento | 1 | 1 | 1 |
| Santa Cruz | 0 | 1 | 1 |
| **Connecticut:** | | | |
| Bridgeport | 0 | 5 | ..... |
| Greenwich | 0 | 1 | 0 |
| Hartford | 1 | 1 | ..... |
| Manchester | 0 | 1 | ..... |
| New Haven | 1 | 1 | ..... |
| **District of Columbia:** | | | |
| Washington | 7 | 2 | 1 |
| **Florida:** | | | |
| Tampa | 1 | 1 | 1 |
| **Georgia:** | | | |
| Albany | 2 | ..... | 1 |
| Atlanta | 2 | 3 | 3 |
| Brunswick | 0 | 1 | ..... |
| Macon | 2 | 2 | ..... |
| Rome | 1 | 3 | ..... |
| **Illinoi :** | | | |
| Champaign | 0 | 1 | ..... |
| Chicago | 8 | 11 | 1 |
| Decatur | 0 | 2 | ..... |
| Elgin | 0 | 1 | ..... |
| Galesburg | 0 | 2 | ..... |
| Peoria | 0 | 3 | ..... |
| **Indiana:** | | | |
| Bloomington | 0 | 1 | ..... |
| Logansport | 0 | 1 | ..... |
| **Kansas:** | | | |
| Coffeyville | 1 | 3 | ..... |
| Hutchinson | 1 | 1 | ..... |
| Kansas City | 2 | 1 | ..... |
| Parsons | 0 | 4 | ..... |
| Topeka | 1 | 2 | ..... |
| Wichita | 3 | 4 | 3 |
| **Kentucky:** | | | |
| Covington | 0 | 1 | 1 |
| Owensboro | 2 | 2 | ..... |
| **Louisiana:** | | | |
| New Orleans | 5 | 11 | ..... |
| **Maine:** | | | |
| Bangor | 0 | 1 | ..... |
| **Maryland:** | | | |
| Baltimore | 12 | 11 | ..... |
| **Massachusetts:** | | | |
| Boston | 4 | 4 | ..... |
| Cambridge | 1 | 1 | ..... |
| Haverhill | 0 | 1 | 1 |
| Lynn | 1 | 1 | ..... |
| Somerville | 0 | 1 | ..... |
| Springfield | 2 | 1 | ..... |
| Waltham | 0 | 1 | ..... |
| Worcester | 1 | ..... | 1 |
| **Michigan:** | | | |
| Grand Rapids | 1 | 1 | ..... |
| Highland Park | 0 | 2 | ..... |
| Jackson | 0 | 1 | 0 |
| Saginaw | 0 | 3 | 0 |
| **Minnesota:** | | | |
| St. Paul | 1 | 1 | 1 |
| Virginia | 0 | 4 | ..... |
| **Missouri:** | | | |
| St. Louis | 10 | 7 | ..... |
| **Nebraska:** | | | |
| Lincoln | 0 | 2 | ..... |
| Omaha | 0 | ..... | 1 |
| **Nevada:** | | | |
| Reno | 0 | 1 | ..... |
| **New Jersey:** | | | |
| Jersey City | 1 | 3 | ..... |
| Long Branch | 0 | 1 | ..... |
| Newark | 1 | 1 | 1 |
| Trenton | 0 | 2 | ..... |
| **New York:** | | | |
| Albany | 1 | 1 | ..... |
| Amsterdam | ..... | 1 | ..... |
| Cohoes | 0 | 1 | ..... |
| Elmira | 0 | 2 | ..... |
| Glens Falls | 0 | 1 | 1 |
| New York | 35 | 35 | 1 |
| Rochester | 1 | 1 | ..... |
| **North Carolina:** | | | |
| Greensboro | 0 | 6 | ..... |
| Raleigh | 1 | 1 | 0 |
| Wilmington | 2 | 1 | ..... |
| Winston-Salem | 2 | 5 | ..... |
| **North Dakota:** | | | |
| Fargo | 0 | 1 | ..... |
| **Ohio:** | | | |
| Canton | 1 | 1 | 0 |
| Cincinnati | 2 | 2 | ..... |
| Cleveland | 8 | 6 | 1 |
| New Philadelphia | 0 | 1 | ..... |
| Springfield | 0 | 2 | 1 |
| Steubenville | 0 | 1 | ..... |
| Toledo | 3 | 4 | 2 |
| **Oklahoma:** | | | |
| Oklahoma | 4 | 1 | ..... |
| Tulsa | 5 | 7 | ..... |
| **Pennsylvania:** | | | |
| Berwick | 0 | 1 | ..... |
| Chester | 0 | 1 | ..... |
| Easton | 0 | 1 | 0 |
| Erie | 0 | 2 | 0 |
| Homestead | 0 | 1 | ..... |
| Johnstown | 0 | 1 | ..... |
| New Castle | 0 | 1 | ..... |
| Philadelphia | 16 | 7 | ..... |
| Pittsburgh | 5 | ..... | 1 |
| Sharon | 0 | 1 | ..... |
| Uniontown | 0 | 2 | ..... |
| West Chester | 0 | 1 | ..... |
| Wilkes-Barre | 0 | 1 | ..... |
| Williamsport | 0 | 1 | ..... |
| **Rhode Island:** | | | |
| Providence | 1 | 2 | ..... |
| **South Carolina:** | | | |
| Columbia | 2 | 2 | ..... |
| **Tennessee:** | | | |
| Memphis | 6 | 13 | 1 |
| Nashville | 12 | 4 | ..... |
| **Texas:** | | | |
| Amarillo | ..... | 2 | ..... |
| Dallas | 4 | 2 | ..... |
| El Paso | 0 | 1 | 2 |
| Fort Worth | 2 | 3 | ..... |

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923—Continued.

### TYPHOID FEVER—Continued.

| City. | Median for previous years. | Week ended Aug. 11, 1922. | | City. | Median for previous years. | Week ended Aug. 11, 1922 | |
|---|---|---|---|---|---|---|---|
| | | Cases. | Deaths. | | | Cases. | Deaths. |
| Texas—Continued. | | | | Washington: | | | |
| Houston | 0 | 3 | ..... | Everett | 0 | 6 | ..... |
| San Antonio | ..... | 2 | 2 | Seattle | 1 | 1 | ..... |
| Utah: | | | | West Virginia: | | | |
| Salt Lake City | 1 | 3 | ..... | Charleston | 3 | 4 | ..... |
| Virginia: | | | | Clarksburg | 0 | 2 | ..... |
| Charlottesville | 1 | 3 | ..... | Parkersburg | 0 | 1 | ..... |
| Lynchburg | 1 | 1 | ..... | Wheeling | 1 | 1 | ..... |
| Norfolk | 4 | 3 | ..... | Wisconsin: | | | |
| Petersburg | 2 | 2 | ..... | Green Bay | 0 | 1 | ..... |
| Richmond | 5 | 3 | ..... | | | | |
| Roanoke | 2 | 3 | ..... | | | | |

### TYPHUS FEVER.

| City. | Cases. | Deaths. |
|---|---|---|
| California: | | |
| Los Angeles | 2 | ..... |

### DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

| City. | Population Jan. 1, 1920. | Total deaths from all causes. | Diphtheria. | | Measles. | | Scarlet fever. | | Tuberculosis. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| Alabama: | | | | | | | | | | |
| Birmingham | 178,806 | 41 | ..... | ..... | 15 | ..... | 1 | ..... | 13 | 2 |
| Dothan | 10,034 | 3 | 1 | ..... | 2 | ..... | ..... | ..... | ..... | ..... |
| Mobile | 60,777 | 16 | 1 | ..... | ..... | 1 | ..... | ..... | ..... | 2 |
| Montgomery | 43,464 | 8 | 3 | 1 | ..... | ..... | 1 | ..... | ..... | ..... |
| Tuscaloosa | 11,996 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... |
| Arkansas: | | | | | | | | | | |
| Little Rock | 65,142 | ..... | 1 | ..... | 2 | ..... | ..... | ..... | 1 | ..... |
| California: | | | | | | | | | | |
| Alameda | 28,806 | 4 | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... |
| Bakersfield | 18,638 | 7 | ..... | ..... | ..... | ..... | 2 | ..... | ..... | 3 |
| Glendale | 13,536 | 9 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 |
| Long Beach | 55,593 | 17 | 2 | ..... | 1 | ..... | 2 | ..... | ..... | 1 |
| Los Angeles | 576,673 | 163 | 45 | ..... | 28 | ..... | 14 | ..... | 30 | 17 |
| Oakland | 216,261 | 43 | 6 | ..... | 4 | ..... | 1 | ..... | ..... | 2 |
| Pasadena | 45,354 | 9 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 |
| Richmond | 16,843 | ..... | ..... | ..... | 5 | ..... | 1 | ..... | ..... | ..... |
| Riverside | 19,341 | 7 | ..... | ..... | 1 | ..... | 3 | ..... | ..... | ..... |
| Sacramento | 65,908 | 11 | 1 | ..... | 1 | ..... | 1 | ..... | 1 | 1 |
| San Bernardino | 18,721 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| San Diego | 74,683 | 23 | ..... | ..... | 2 | ..... | 1 | ..... | 4 | 5 |
| San Francisco | 506,676 | 116 | 29 | 4 | 53 | ..... | 6 | ..... | 23 | 11 |
| Santa Ana | 15,485 | 4 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... |
| Santa Cruz | 10,917 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Stockton | 40,296 | 4 | 2 | ..... | ..... | ..... | 1 | ..... | ..... | ..... |
| Colorado: | | | | | | | | | | |
| Pueblo | 43,050 | 12 | 5 | 1 | ..... | ..... | 2 | ..... | 1 | 1 |
| Trinidad | 10,906 | 1 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| Connecticut: | | | | | | | | | | |
| Bridgeport | 143,555 | 25 | 4 | ..... | 3 | ..... | 1 | ..... | 6 | 3 |
| Greenwich (town) | 22,123 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hartford | 138,036 | 18 | 3 | ..... | ..... | ..... | 1 | ..... | 3 | 2 |
| Manchester (town) | 18,370 | 3 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| New Haven | 162,537 | 34 | 3 | ..... | ..... | ..... | ..... | ..... | 3 | 1 |
| New London | 25,688 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 |
| District of Columbia: | | | | | | | | | | |
| Washington | 437,571 | 131 | 1 | 1 | ..... | ..... | 2 | ..... | 24 | 11 |

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923—Continued.

### DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

| City. | Population Jan. 1, 1920. | Total deaths from all causes. | Diphtheria. | | Measles. | | Scarlet fever. | | Tuberculosis. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| **Florida:** | | | | | | | | | | |
| St. Petersburg | 14,237 | 3 | | | | | | | | |
| Tampa | 51,608 | 21 | | | | | | | | 1 |
| **Georgia:** | | | | | | | | | | |
| Albany | 11,555 | | | | | | | | 1 | |
| Atlanta | 200,616 | 89 | 3 | | 5 | | • 2 | | 7 | 4 |
| Brunswick | 14,413 | 7 | | | | | | | | 1 |
| Macon | 52,995 | | | | | | | | 5 | |
| Savannah | 83,252 | 32 | | | 2 | | | | 2 | 6 |
| **Idaho:** | | | | | | | | | | |
| Boise | 21,393 | 7 | | | | | | | | |
| **Illinois:** | | | | | | | | | | |
| Alton | 24,682 | 5 | | | | | | | 2 | |
| Aurora | 36,397 | 10 | | | | | | | 2 | 1 |
| Bloomington | 28,725 | 5 | | | | | | | 2 | |
| Centralia | 12,491 | 3 | | | | | | | | |
| Chicago | 2,701,705 | 492 | 51 | 4 | 19 | 1 | 22 | 2 | 190 | 47 |
| Cicero | 44,995 | 8 | 1 | | | | 1 | | | |
| Decatur | 43,818 | 7 | 2 | | | | | | | 1 |
| East St. Louis | 66,767 | 16 | 1 | | | | | | 1 | |
| Elgin | 27,454 | 2 | 1 | 1 | 2 | | 1 | | | |
| Evanston | 37,234 | 6 | | | | | | | | |
| Freeport | 19,669 | 2 | | | 1 | | 2 | | 2 | |
| Galesburg | 23,834 | 7 | | | | | 2 | | | |
| La Salle | 13,050 | 1 | | | | | | | | |
| Mattoon | 13,552 | | | | | | | | 1 | |
| Peoria | 76,121 | 20 | 1 | 1 | | | | | | 1 |
| Quincy | 35,978 | 10 | | | | | | | 1 | |
| Rock Island | 35,177 | 2 | 1 | | 4 | | | | | |
| Rockford | 65,651 | 13 | | | 1 | | | | | |
| Springfield | 59,183 | 14 | | | | | | | | |
| **Indiana:** | | | | | | | | | | |
| Anderson | 29,767 | 5 | | | | | | | | |
| Bloomington | 11,595 | 5 | | | | | | | | |
| Crawfordsville | 10,139 | 2 | | | 2 | | 2 | | | |
| East Chicago | 35,967 | 13 | | | | | | | 2 | |
| Elwood | 10,790 | 1 | | | | | | | | |
| Fort Wayne | 86,549 | 21 | 5 | | | | | | | |
| Frankfort | 11,585 | 2 | | | | | | | | |
| Gary | 55,378 | 16 | | | | | | | | |
| Hammond | 36,004 | 8 | | | | | 1 | | | |
| Huntington | 14,000 | 3 | | | | | | | | |
| Indianapolis | 314,194 | 87 | 3 | 1 | 7 | | 1 | | 22 | 14 |
| Kokomo | 30,067 | 13 | | | | | | | | |
| La Fayette | 22,486 | 9 | | | | | 1 | | | |
| Logansport | 21,626 | 6 | | | | | | | | |
| Michigan City | 19,457 | 7 | | | | | | | | |
| Muncie | 36,524 | 8 | 1 | | 2 | | 1 | | | 1 |
| Newcastle | 14,458 | 6 | | | | | | | | 1 |
| **Iowa:** | | | | | | | | | | |
| Burlington | 24,057 | 5 | 1 | | | | | | | |
| Council Bluffs | 36,162 | 5 | | | | | 4 | | | |
| Muscatine | 16,068 | 7 | | | | | | | | |
| Sioux City | 71,227 | | 1 | | 2 | | 1 | | | |
| **Kansas:** | | | | | | | | | | |
| Atchison | 12,630 | | 4 | | | | | | | |
| Coffeyville | 13,452 | 3 | | | | | | | | |
| Fort Scott | 10,603 | 8 | 1 | | 1 | | | | | |
| Hutchinson | 23,298 | | | | | | 1 | | | |
| Kansas City | 101,177 | | | | 2 | | | | 7 | |
| Lawrence | 12,456 | 2 | | | | | | | | 1 |
| Topeka | 50,022 | 21 | | | 2 | | | | | |
| Wichita | 72,217 | 31 | | | 5 | | 1 | | | |
| **Kentucky:** | | | | | | | | | | |
| Covington | 57,121 | 15 | | | 5 | | | | 3 | |
| Henderson | 12,160 | 3 | | | | | | | | |
| Lexington | 41,534 | 14 | 1 | | 2 | | | | | 2 |
| **Louisiana:** | | | | | | | | | | |
| New Orleans | 387,219 | 130 | 9 | | 1 | | 3 | | 19 | 9 |
| **Maine:** | | | | | | | | | | |
| Auburn | 16,985 | 2 | | | | | 1 | | | |
| Bangor | 25,978 | | | | | | 1 | | 1 | |
| Bath | 14,731 | 1 | | | | | | | | |
| Lewiston | 31,791 | 13 | 3 | | | | 1 | | 1 | 1 |
| Sanford (town) | 10,691 | 1 | | | | | | | | |

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923—Continued.

### DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

| City. | Population Jan. 1, 1920. | Total deaths from all causes. | Diphtheria. | | Measles. | | Scarlet fever. | | Tuberculosis. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| Maryland: | | | | | | | | | | |
| Baltimore | 733,826 | 180 | 18 | 2 | 20 | ..... | 19 | 1 | 18 | 14 |
| Cumberland | 29,837 | 9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Frederick | 11,066 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Massachusetts. | | | | | | | | | | |
| Adams (town) | 12,967 | 2 | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... |
| Amesbury (town) | 10,036 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Arlington (town) | 18,665 | 5 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Attleboro | 19,731 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Beverly | 22,561 | 10 | ..... | ..... | 1 | ..... | ..... | ..... | 1 | ..... |
| Boston | 748,060 | 150 | 39 | 1 | 28 | ..... | 23 | 1 | 23 | 17 |
| Braintree (town) | 10,580 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| Brockton | 66,254 | 16 | 2 | 1 | 3 | ..... | ..... | ..... | 2 | ..... |
| Brookline | 37,748 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cambridge | 109,694 | 26 | 5 | ..... | 3 | ..... | 2 | ..... | 3 | 2 |
| Chelsea | 43,184 | 15 | ..... | ..... | ..... | ..... | 2 | ..... | ..... | 1 |
| Chicopee | 36,214 | 8 | 2 | 1 | ..... | ..... | ..... | ..... | ..... | ..... |
| Clinton | 12,979 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| Danvers | 11,108 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... |
| Dedham | 10,792 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| Easthampton | 11,261 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 |
| Everett | 40,120 | 9 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Fall River | 120,485 | 28 | 3 | ..... | 1 | ..... | 4 | ..... | 5 | 3 |
| Framington | 17,033 | 4 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| Gardner | 16,971 | 3 | 1 | ..... | 2 | ..... | ..... | ..... | ..... | ..... |
| Greenfield | 15,462 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Haverhill | 53,884 | 9 | 1 | ..... | 2 | ..... | ..... | ..... | ..... | ..... |
| Holyoke | 60,203 | 12 | 3 | ..... | ..... | ..... | ..... | ..... | 1 | 1 |
| Lawrence | 94,270 | 14 | 3 | 1 | ..... | ..... | ..... | ..... | 2 | 2 |
| Leominster | 19,744 | 5 | ..... | ..... | 2 | ..... | 1 | ..... | 2 | ..... |
| Lowell | 112,759 | 24 | 1 | ..... | 1 | ..... | 3 | ..... | 6 | 1 |
| Lynn | 99,148 | 19 | 1 | ..... | ..... | ..... | ..... | ..... | 1 | 3 |
| Malden | 49,103 | 7 | 1 | ..... | ..... | ..... | ..... | ..... | 1 | 2 |
| Medford | 39,038 | 7 | 5 | ..... | ..... | ..... | 2 | ..... | 2 | 1 |
| Melrose | 18,204 | 5 | ..... | ..... | 1 | ..... | 3 | ..... | ..... | ..... |
| Methuen | 15,189 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Milford | 13,471 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 |
| New Bedford | 121,217 | 20 | 3 | ..... | ..... | ..... | ..... | ..... | 12 | 3 |
| Newburyport | 15,618 | 3 | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... |
| Newton | 46,054 | 10 | ..... | ..... | 2 | ..... | 1 | ..... | 1 | ..... |
| North Adams | 22,282 | 6 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Northampton | 21,951 | 6 | ..... | ..... | ..... | ..... | 3 | ..... | 2 | 1 |
| Pittsfield | 41,763 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Plymouth | 13,045 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Quincy | 47,876 | 6 | 1 | ..... | 1 | ..... | ..... | ..... | 4 | 1 |
| Somerville | 93,091 | 16 | 1 | ..... | ..... | ..... | 2 | ..... | 2 | 2 |
| Southbridge | 14,245 | 2 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Springfield | 129,614 | 23 | 1 | ..... | 1 | ..... | 1 | ..... | 3 | ..... |
| Taunton | 37,137 | 9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| Wakefield | 13,025 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... |
| Waltham | 30,915 | 11 | 2 | ..... | ..... | ..... | ..... | ..... | 1 | ..... |
| Watertown | 21,457 | ..... | ..... | ..... | 3 | ..... | ..... | ..... | 3 | ..... |
| Webster | 13,258 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| West Springfield | 13,443 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Westfield | 18,604 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 |
| Weymouth | 15,057 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Winthrop | 15,455 | 2 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Woburn | 16,574 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Worcester | 179,754 | 28 | 3 | ..... | ..... | ..... | 2 | ..... | 1 | 4 |
| Michigan: | | | | | | | | | | |
| Alpena | 11,101 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| Ann Arbor | 19,516 | 16 | ..... | ..... | 1 | ..... | 1 | ..... | ..... | ..... |
| Battle Creek | 36,164 | ..... | 3 | ..... | ..... | ..... | 2 | ..... | ..... | ..... |
| Flint | 91,599 | 24 | 7 | ..... | 15 | ..... | 1 | ..... | 3 | 1 |
| Grand Rapids | 137,634 | 22 | 1 | ..... | 8 | ..... | ..... | ..... | 3 | 2 |
| Hamtramck | 48,615 | 13 | 3 | 1 | 1 | ..... | ..... | ..... | ..... | ..... |
| Highland Park | 46,499 | 20 | ..... | ..... | 1 | ..... | 2 | ..... | ..... | ..... |
| Holland | 12,183 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Jackson | 48,374 | 9 | ..... | ..... | 1 | ..... | 2 | ..... | ..... | 1 |
| Kalamazoo | 48,487 | 16 | 6 | ..... | 6 | ..... | ..... | ..... | ..... | 1 |
| Marquette | 12,718 | 1 | ..... | ..... | ..... | ..... | 3 | ..... | ..... | ..... |
| Muskegon | 36,570 | 7 | 1 | ..... | 2 | ..... | ..... | ..... | ..... | ..... |
| Pontiac | 34,273 | 17 | ..... | ..... | ..... | ..... | 8 | ..... | ..... | 1 |
| Port Huron | 25,944 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 |
| Saginaw | 61,903 | 6 | 1 | ..... | 9 | ..... | 1 | ..... | ..... | ..... |

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923—Continued.

### DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

| City. | Population Jan. 1, 1920. | Total deaths from all causes. | Diphtheria. | | Measles. | | Scarlet fever. | | Tuberculosis. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| Minnesota: | | | | | | | | | | |
| Duluth | 98,917 | 16 | | | | | 4 | | 6 | |
| Hibbing | 15,089 | | 2 | | | | | | | |
| Minneapolis | 380,582 | 70 | 5 | | 1 | | 9 | | 12 | 2 |
| Rochester | 13,722 | 15 | 1 | | | | | | | 1 |
| St. Cloud | 15,873 | | | | | | 1 | | | |
| St. Paul | 234,698 | 45 | 13 | | 1 | | 12 | | 15 | 1 |
| Missouri: | | | | | | | | | | |
| Cape Girardeau | 10,252 | 5 | | | | | | | | |
| Independence | 11,686 | | | | 1 | | | | | |
| St. Joseph | 77,939 | 36 | | | | | | | | |
| St. Louis | 772,897 | 171 | 17 | | 3 | | 6 | | 26 | 12 |
| Springfield | 39,631 | 14 | | | | | | | | |
| Montana: | | | | | | | | | | |
| Anaconda | 11,668 | 2 | | | 3 | 1 | | | | |
| Billings | 15,100 | 4 | | | 1 | | | | | |
| Great Falls | 24,121 | 7 | | | | | 1 | | 1 | |
| Helena | 12,037 | 2 | | | 1 | | | | | |
| Missoula | 12,668 | 6 | | | | | | | | |
| Nebraska: | | | | | | | | | | |
| Lincoln | 54,948 | 10 | 1 | | | | | | 1 | |
| Omaha | 191,601 | 56 | 7 | 2 | | | | | | |
| Nevada: | | | | | | | | | | |
| Reno | 12,016 | 3 | | | | | | | 1 | 1 |
| New Hampshire: | | | | | | | | | | |
| Concord | 22,167 | 8 | | | 1 | | 1 | | | 1 |
| Dover | 13,029 | 1 | | | | | | | | 1 |
| Keene | 11,210 | 1 | 1 | | 6 | | | | | |
| Manchester | 78,384 | 12 | | | | | 1 | | | |
| Nashua | 28,379 | 5 | | | 3 | | | | | |
| New Jersey: | | | | | | | | | | |
| Asbury Park | 12,400 | 1 | | | | | | | | |
| Atlantic City | 50,707 | 19 | 1 | | | | | | 1 | 1 |
| Bayonne | 76,754 | | | | | | 1 | | 1 | |
| Bloomfield | 22,019 | 2 | | | | | | | | |
| Clifton | 26,470 | 3 | 1 | | | | | | | 1 |
| East Orange | 50,710 | 6 | | | 1 | | 1 | | | |
| Englewood | 11,627 | 3 | | | | | | | 1 | |
| Hackensack | 17,667 | 5 | | | | | | | | |
| Harrison | 15,721 | | 1 | | | | 1 | | | |
| Hoboken | 68,166 | 11 | | | | | 2 | | | |
| Jersey City | 298,103 | | | | 4 | | 8 | | 7 | |
| Kearny | 26,724 | 2 | 2 | | | | | | 1 | 1 |
| Long Branch | 13,521 | 3 | | | 1 | | | | | |
| Morristown | 12,548 | 5 | | | | | | | | |
| Newark | 414,524 | 97 | 5 | | 6 | | | | 16 | 7 |
| Orange | 33,268 | 8 | | | | | 1 | | 1 | |
| Passaic | 63,841 | 22 | 3 | 1 | 1 | | 1 | | | |
| Paterson | 135,875 | | 5 | | 15 | | | | 5 | |
| Perth Amboy | 41,707 | 5 | | | | | | | | |
| Plainfield | 27,700 | 12 | | | | | | | 1 | |
| Summit | 10,174 | 1 | | | 1 | | | | | |
| Trenton | 119,289 | 16 | 6 | | | | | | 1 | 1 |
| West Hoboken | 40,074 | 4 | | | | | | | | |
| West New York | 29,926 | 2 | 1 | | | | | | | |
| West Orange | 15,573 | 3 | | | | | | | | |
| New York: | | | | | | | | | | |
| Albany | 113,344 | | | | 5 | | 2 | | | |
| Amsterdam | 33,524 | 6 | | | 2 | | | | 1 | 1 |
| Auburn | 36,192 | 8 | | | | | 1 | | | |
| Buffalo | 506,775 | 103 | 10 | 1 | 3 | | 5 | | 15 | 11 |
| Cohoes | 22,987 | 4 | | | | | | | | |
| Elmira | 45,393 | 11 | | | 1 | | | | | |
| Geneva | 14,648 | 5 | | | | | | | | |
| Glens Falls | 16,638 | 8 | | | | | | | 2 | |
| Hornell | 15,025 | 2 | | | 1 | | | | | |
| Hudson | 11,745 | | | | | | | | 2 | |
| Ithaca | 17,004 | 1 | | | | | | | | |
| Lackawanna | 17,918 | 3 | | | | | | | | 1 |
| Lockport | 21,308 | 6 | | | | | 1 | | | |
| Middletown | 18,420 | | | | | | 1 | | | |
| New York | 5,620,048 | 1,085 | 93 | 3 | 51 | 2 | 23 | | [1] 252 | [1] 77 |
| Newburgh | 30,366 | 9 | 1 | | | | | | | 1 |

[1] Pulmonary only.

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923—Continued.

### DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

| City. | Population Jan. 1, 1920. | Total deaths from all causes. | Diphtheria. | | Measles. | | Scarlet fever. | | Tuberculosis. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| New York—Continued. | | | | | | | | | | |
| Niagara Falls | 50,760 | 10 | ..... | ..... | 4 | ..... | 1 | ..... | 2 | 1 |
| North Tonawanda | 15,482 | 4 | ..... | ..... | 2 | ..... | 4 | ..... | ..... | ..... |
| Olean | 20,506 | 7 | 1 | ..... | 1 | ..... | 2 | ..... | ..... | ..... |
| Peekskill | 15,868 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... |
| Rochester | 295,750 | 53 | 1 | ..... | 1 | 2 | 4 | ..... | 30 | 5 |
| Saratoga Springs | 13,181 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Schenectady | 88,723 | 16 | 3 | ..... | 5 | ..... | ..... | ..... | 2 | 1 |
| Syracuse | 171,717 | 43 | 2 | ..... | 4 | 4 | 4 | ..... | 7 | 3 |
| Watertown | 31,285 | 8 | ..... | ..... | 5 | ..... | ..... | ..... | ..... | ..... |
| White Plains | 21,031 | 1 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... |
| North Carolina: | | | | | | | | | | |
| Durham | 21,719 | 8 | 1 | ..... | ..... | ..... | ..... | ..... | 1 | 3 |
| Greensboro | 43,525 | 9 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| Raleigh | 24,418 | 10 | 2 | ..... | ..... | ..... | 1 | ..... | ..... | 1 |
| Rocky Mount | 12,742 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Salisbury | 13,884 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Wilmington | 33,372 | 13 | 1 | ..... | 1 | ..... | ..... | ..... | ..... | 2 |
| Winston-Salem | 48,395 | 15 | 3 | 1 | 26 | ..... | 3 | ..... | 1 | 1 |
| North Dakota: | | | | | | | | | | |
| Fargo | 21,961 | 4 | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... |
| Grand Forks | 14,010 | ..... | ..... | ..... | ..... | ..... | 3 | ..... | ..... | ..... |
| Ohio: | | | | | | | | | | |
| Akron | 208,435 | 19 | 4 | ..... | 1 | ..... | 4 | ..... | 2 | ..... |
| Ashtabula | 22,082 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Barberton | 18,811 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| Bucyrus | 10,425 | 2 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| Cambridge | 13,104 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... |
| Canton | 87,091 | 12 | 2 | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| Chillicothe | 15,831 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cincinnati | 401,247 | 123 | 4 | 2 | 8 | ..... | 2 | ..... | 22 | 7 |
| Cleveland | 796,841 | 139 | 14 | ..... | 12 | ..... | 16 | 1 | 37 | 11 |
| Dayton | 152,559 | 32 | 1 | ..... | ..... | ..... | 1 | ..... | 1 | ..... |
| East Cleveland | 27,292 | 1 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 1 |
| Findlay | 17,021 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... |
| Fremont | 12,468 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hamilton | 39,675 | 13 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Lancaster | 14,706 | 6 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... |
| Lima | 41,326 | ..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... |
| Lorain | 37,295 | ..... | 1 | ..... | ..... | ..... | 3 | ..... | 2 | ..... |
| Mansfield | 27,824 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| Middletown | 23,594 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| New Philadelphia | 10,718 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... |
| Newark | 26,718 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| Niles | 13,080 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Norwood | 24,966 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Piqua | 15,044 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Salem | 10,305 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| Sandusky | 22,897 | 3 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... |
| Springfield | 60,840 | 17 | 1 | ..... | 3 | ..... | 1 | ..... | 1 | ..... |
| Steubenville | 28,508 | 11 | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... |
| Toledo | 243,164 | 64 | 7 | 1 | ..... | ..... | 3 | ..... | 4 | 3 |
| Youngstown | 132,358 | 20 | 9 | 1 | 7 | 1 | ..... | ..... | 1 | 2 |
| Zanesville | 29,569 | 9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Oklahoma: | | | | | | | | | | |
| Oklahoma | 91,295 | 25 | ..... | 1 | ..... | ..... | 2 | ..... | ..... | ..... |
| Tulsa | 72,075 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... |
| Oregon: | | | | | | | | | | |
| Portland | 258,288 | 39 | 3 | 1 | ..... | ..... | 3 | ..... | 2 | 1 |
| Pennsylvania: | | | | | | | | | | |
| Allentown | 73,502 | ..... | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Altoona | 60,331 | ..... | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Berwick | 12,181 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... |
| Bethlehem | 50,358 | ..... | 5 | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| Bradford | 15,525 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| Bristol | 10,273 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Canonsburg | 10,632 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... |
| Carlisle | 10,916 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| Charleroi | 11,516 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Chester | 58,030 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Duquesne | 19,011 | ..... | 1 | ..... | ..... | ..... | 1 | ..... | ..... | ..... |
| Easton | 33,813 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| Erie | 93,372 | ..... | 3 | ..... | 7 | ..... | 1 | ..... | 18 | ..... |
| Farrell | 15,586 | ..... | 5 | ..... | ..... | ..... | 3 | ..... | ..... | ..... |

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923—Continued.

### DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

| City. | Population Jan. 1, 1920. | Total deaths from all causes. | Diphtheria. | | Measles. | | Scarlet fever. | | Tuberculosis. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| Pennsylvania—Continued. | | | | | | | | | | |
| Harrisburg | 75,917 | | | | 5 | | | | | |
| Johnstown | 67,327 | | 7 | | 4 | | 2 | | | |
| Lancaster | 53,150 | | 1 | | 1 | | 2 | | | |
| Lebanon | 24,643 | | 15 | | | | 1 | | | |
| McKee's Rocks | 16,713 | | 2 | | | | 1 | | | |
| Oil City | 21,274 | | 1 | | | | | | | |
| Philadelphia | 1,823,779 | 358 | 23 | 4 | 4 | | 12 | | 43 | 33 |
| Pittsburgh | 58,343 | 137 | 25 | 2 | 9 | | 15 | 1 | | 9 |
| Plymouth | 16,500 | | 1 | | | | | | 1 | |
| Pottsville | 21,876 | | | | 5 | | 1 | | | |
| Reading | 107,784 | | | | 2 | | 1 | | | |
| Scranton | 137,783 | | 1 | | | | 1 | | | |
| Sharon | 21,747 | | 3 | | | | | | | |
| Steelton | 13,428 | | 1 | | | | 1 | | | |
| Swissvale | 10,908 | | 2 | | | | 1 | | | |
| Uniontown | 15,692 | | 1 | | | | | | | |
| Washington | 21,480 | | 3 | | 3 | | | | | |
| West Chester | 11,717 | | | | 1 | | | | | |
| Wilkes-Barre | 73,833 | | | | 1 | | | | | |
| Williamsport | 36,198 | | | | 1 | | | | | |
| Woodlawn | 12,495 | | 1 | | | | | | | |
| York | 47,512 | | | | | | 1 | | | |
| Rhode Island: | | | | | | | | | | |
| Cranston | 29,407 | 4 | 1 | | | | | | | |
| Newport | 30,255 | 6 | | | | | | | | 1 |
| Pawtucket | 64,248 | 6 | | 1 | | | | | | |
| Providence | 237,595 | 46 | 2 | 2 | | | | | | 4 |
| South Carolina: | | | | | | | | | | |
| Charleston | 67,957 | 24 | | | | | | | | 2 |
| Columbia | 37,524 | 21 | | | 5 | | 1 | | | 1 |
| South Dakota: | | | | | | | | | | |
| Sioux Falls | 25,202 | 4 | | | 1 | | 1 | | | 1 |
| Tennessee: | | | | | | | | | | |
| Memphis | 162,351 | 7 | 3 | | 7 | | 6 | | 23 | 3 |
| Nashville | 118,342 | 41 | 1 | | 1 | | | | 5 | 3 |
| Texas: | | | | | | | | | | |
| Beaumont | 40,422 | 14 | 1 | | | | | | | 1 |
| Corpus Christi | 10,522 | 3 | | | | | | | | |
| Dallas | 158,976 | 45 | 4 | 1 | 2 | | 3 | | 2 | 2 |
| El Paso | 77,560 | 62 | | | 1 | | 1 | | 4 | 7 |
| Fort Worth | 106,482 | 24 | 2 | | 3 | | 1 | | 3 | 3 |
| Galveston | 44,255 | 14 | | | 1 | | 1 | | | 1 |
| Houston | 138,276 | 42 | 2 | 1 | 1 | | 1 | | | 6 |
| San Angelo | 10,050 | 14 | | | | | | | | 1 |
| San Antonio | 161,379 | 40 | | | | | | | 8 | 9 |
| Waco | 38,500 | 13 | 1 | | | | | | | 1 |
| Utah: | | | | | | | | | | |
| Provo | 10,303 | 6 | 2 | | 1 | | | | | |
| Salt Lake City | 118,110 | 23 | 2 | | 2 | | 1 | | | 3 |
| Vermont: | | | | | | | | | | |
| Burlington | 22,779 | 11 | | | | | | | | 1 |
| Virginia: | | | | | | | | | | |
| Alexandria | 18,060 | 7 | | | | | | | | |
| Charlottesville | 10,688 | 1 | | | | | | | | |
| Danville | 21,539 | 8 | 1 | | | | | | | 2 |
| Lynchburg | 30,070 | 4 | 1 | | | | | | 2 | 1 |
| Norfolk | 115,777 | | 3 | | | | | | 4 | 1 |
| Petersburg | 31,012 | 10 | | | | | | | 1 | 2 |
| Richmond | 171,667 | 53 | 2 | | 10 | 2 | 2 | | 3 | 5 |
| Roanoke | 50,842 | 15 | 1 | | 2 | | | | | 2 |
| Washington: | | | | | | | | | | |
| Bellingham | 25,585 | | 1 | | 1 | | | | 1 | |
| Everett | 27,644 | | | | | | | | 1 | |
| Seattle | 315,312 | | 3 | | 2 | | 3 | | | |
| Spokane | 104,437 | | 4 | | 10 | | 3 | | | |
| Tacoma | 96,965 | | | | | | 7 | | | |
| Walla Walla | 15,503 | | | | | | 2 | | | |
| West Virginia: | | | | | | | | | | |
| Bluefield | 15,282 | 3 | 1 | | | | | | | |
| Charleston | 39,608 | 15 | 1 | | 1 | | | | 2 | 1 |
| Clarksburg | 27,869 | 10 | | | 3 | | | | | |
| Huntington | 50,177 | 27 | | | | | 1 | | | 1 |
| Parkersburg | 20,050 | 5 | | 1 | | | | | | |
| Wheeling | 56,208 | 11 | 1 | | 1 | | 1 | | | 1 |

## CITY REPORTS FOR WEEK ENDED AUGUST 11, 1923—Continued.

### DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

| City. | Population Jan. 1, 1920. | Total deaths from all causes. | Diphtheria. | | Measles. | | Scarlet fever. | | Tuberculosis. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| Wisconsin: | | | | | | | | | | |
| Appleton | 12,561 | 1 | | | | | | | | |
| Ashland | 11,334 | 1 | 1 | | 1 | | 2 | | | |
| Beloit | 21,284 | 7 | | | | | 1 | | | |
| Eau Claire | 20,906 | | | | 4 | | | | | |
| Fond du Lac | 23,427 | 5 | | | | | | | | |
| Green Bay | 31,017 | | | | | | 1 | 1 | | |
| Janesville | 18,293 | 4 | | | 1 | | | | | |
| Kenosha | 40,472 | 11 | | | | | 1 | | | |
| Madison | 38,378 | 2 | | | 5 | | | | 1 | |
| Manitowoc | 17,563 | | | | 1 | | | | | |
| Milwaukee | 457,147 | 75 | 13 | 2 | | | 10 | | 4 | |
| Oshkosh | 33,162 | 9 | 1 | | | | | | | 1 |
| Racine | 58,593 | 13 | 1 | 1 | | | | | 2 | 1 |
| Sheboygan | 30,955 | 16 | 8 | 1 | | | | | | |
| Superior | 39,671 | 8 | | | | | 2 | | | |
| Wausau | 18,661 | | 6 | | 1 | | | | 1 | |

## FOREIGN AND INSULAR.

### ALGERIA.

**Smallpox—Tuberculosis—Typhus Fever—Algiers—June, 1923.**

During the month of June, 1923, 9 cases of smallpox, 87 cases of tuberculosis, all forms, with 87 deaths, and 25 cases of typhus fever with 5 deaths, were reported at Algiers, Algeria. Population, census of March, 1923, 206,595.

### BRAZIL.

**Yellow Fever—Bahia.**

Yellow fever has been reported at Bahia as follows: Week ended June 30, 1923—four cases; week ended July 7, 1923—two deaths.

### CUBA.

**Communicable Diseases.**

Communicable diseases have been reported in Cuba as follows:

*Habana.*

| Disease. | July 21–31, 1923. | | Remaining under treatment July 31, 1923. |
|---|---|---|---|
| | New cases. | Deaths. | |
| Chicken pox | | | 1 |
| Diphtheria | 5 | | 4 |
| Leprosy | | | [1] 12 |
| Malaria | 52 | 1 | [2] 66 |
| Measles | 3 | | 4 |
| Paratyphoid fever | 2 | | 7 |
| Scarlet fever | 3 | | 3 |
| Typhoid fever | 28 | 3 | [3] 64 |

[1] From abroad, 1. [2] From the interior, 33. [3] From the interior, 32.

| Disease. | Aug. 1–10, 1923. | | Remaining under treatment Aug. 10, 1923 |
|---|---|---|---|
| | New cases. | Deaths. | |
| Diphtheria | 1 | | 3 |
| Leprosy | | | [1] 12 |
| Malaria | 68 | 2 | [2] 53 |
| Measles | 2 | | 2 |
| Paratyphoid fever | | | 7 |
| Scarlet fever | 1 | | 1 |
| Typhoid fever | 16 | 2 | [3] 63 |

[1] From abroad, 1. [2] From the interior, 34. [3] From the interior, 34.

*Provinces.*

June 21-30, 1923.

| Province. | Chicken pox. | Diphtheria. | Infantile paralysis. | Malaria. | Measles. | Paratyphoid fever. | Scarlet fever. | Typhoid fever. |
|---|---|---|---|---|---|---|---|---|
| Camaguey | | | | 11 | | 1 | | 3 |
| Habana | 6 | 3 | | 44 | 6 | 7 | 1 | 25 |
| Matanzas | | | | 1 | 1 | 6 | | 8 |
| Oriente | 14 | 1 | | 183 | | | | 31 |
| Pinar del Rio | | 1 | | | | 1 | | 6 |
| Santa Clara | | 2 | 1 | 1 | | 7 | | 13 |
| Total | 20 | 7 | 1 | 240 | 7 | 22 | 1 | 86 |

## ECUADOR.

### Plague—Plague-Infected Rats—July 16-31, 1923.

During the period July 16 to 31, 1923, three cases of plague with three deaths were reported at Santa Ana (Manabi), Ecuador. During the same period, out of 4,800 rats examined at Guayaquil, 11 were found plague-infected.

## EGYPT.

### Status of Plague.

During the week ended July 22, 1923, 21 cases of plague were reported in Egypt, of which 2 occurred in Alexandria, 5 at Port Said, and 1 case at Suez. The remaining 13 cases were distributed in eight districts. The total number of cases notified from January 1 to July 22, 1923, was 1,211, against 380 cases notified during the corresponding period of the preceding year. From January 1 to July 26, 1923, 1,241 cases and 619 deaths were reported.

## FRANCE.

### Birth Rates and Death Rates, 1911-1922.

The following birth rates and death rates for the civilian population of France for the years 1911-1922 are taken from the Statistiques Générales de la France. Stillbirths were not included in computing these rates.

| Year.[1] | Birth rate per 10,000 population. | Death rate per 10,000 population. | Year.[1] | Birth rate per 10,000 population. | Death rate per 10,000 population. |
|---|---|---|---|---|---|
| 1911 | 187 | 196 | 1917 | 119 | 202 |
| 1912 | 189 | 175 | 1918 | 133 | 246 |
| 1913 | 188 | 177 | 1919 | 130 | 190 |
| 1914 | 197 | 207 | 1920 | 213 | 172 |
| 1915 | 132 | 210 | 1921 | 207 | 177 |
| 1916 | 108 | 198 | 1922 | 194 | 176 |

[1] The figures for the years 1911-1913 are for the 87 Departments of France prior to the war; 1914-1918 for the 77 Departments not invaded during the war; and 1919-1922 for the 90 Departments of France, including the 3 Departments of Alsace-Lorraine.

## HAWAII.

### Plague-infected Rat—Honokaa.

A rat trapped at the Honokaa Sugar Plantation, Honokaa, Hawaii, July 20, 1923, was reported, August 6, 1923, found plague infected.

## IRAQ (MESOPOTAMIA).

### Cholera—Bassorah.

Under date of August 21, 1923, cholera was reported present at Bassorah, Iraq (Mesopotamia). The port was stated to have been declared infected since August 6, 1923.

## LATVIA.

### Communicable Diseases—May, 1923.

Communicable diseases have been reported in the Republic of Latvia, as follows:

| Disease. | Cases. | Remarks. |
|---|---|---|
| Chicken pox | 14 | |
| Diphtheria | 70 | |
| Malaria | 8 | |
| Measles | 29 | |
| Scarlet fever | 167 | |
| Smallpox | 5 | |
| Typhoid fever | 63 | |
| Typhus fever | 90 | Paratyphus, cases, 4. |
| Whooping cough | 58 | |

### Dysentery—Leprosy—Rabies—May, 1923.

During the month of May, 1923, four cases of dysentery, seven cases of leprosy, and four cases of rabies were reported in the Republic of Latvia.

## POLAND.

### Communicable Diseases—April 29–May 12, 1923.

During the period April 29 to May 12, 1923, communicable diseases were reported in Poland as follows:

*April 29–May 5, 1923.*

| Disease. | Cases. | Deaths. | Districts showing greatest number of deaths. |
|---|---|---|---|
| Cerebrospinal meningitis | 12 | 6 | Warsaw. |
| Diphtheria | 66 | 6 | Silesia. |
| Measles | 13 | 3 | Kielce. |
| Scarlet fever | 185 | 11 | Stanislawow. |
| Smallpox | 1 | 1 | Lodz. |
| Tuberculosis | 148 | 237 | Do. |
| Typhoid fever | 166 | 12 | Do. |
| Typhus fever | 330 | 26 | Tarnopol. |
| Typhus fever, recurrent | 153 | ..... | |
| Whooping cough | 47 | 7 | Krakow. |

*May 6–12, 1923.*

| | | | |
|---|---|---|---|
| Cerebrospinal meningitis | 7 | 5 | Silesia. |
| Diphtheria | 57 | 3 | Bialystok. |
| Measles | 403 | 4 | Lublin. |
| Scarlet fever | 161 | 22 | Tarnopol. |
| Smallpox | 14 | 3 | Lwow. |
| Tuberculosis | 128 | 212 | Do. |
| Typhoid fever | 173 | 17 | Lodz. |
| Typhus fever | 390 | 35 | Lwow. |
| Typhus fever, recurrent | 35 | 1 | Lublin. |
| Whooping cough | 45 | 10 | Stanislawow. |

**Dysentery—April 29–May 12, 1923.**

During the period April 29 to May 12, 1923, 20 cases of dysentery with 5 deaths were reported in Poland. The greatest mortality was reported in the districts of Warsaw and Wilno.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.

The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

### Reports Received During Week Ended August 31, 1923.[1]

#### CHOLERA.

| Place. | Date. | Cases. | Deaths. | Remarks. |
|---|---|---|---|---|
| India | | | | June 10–16, 1923: Cases, 3,284; deaths, 2,279. |
| Calcutta | June 24–30 | 82 | 58 | |
| Rangoon | July 1–7 | 2 | 2 | |
| Iraq (Mesopotamia): | | | | |
| Bassorah | Aug. 21 | ..... | ..... | Present. Port declared infected since Aug. 6. |

#### PLAGUE.

| | | | | |
|---|---|---|---|---|
| Ceylon: | | | | |
| Colombo | June 24–30 | 3 | 2 | |
| Do | July 1–7 | 8 | 8 | Plague rats, 2. |
| China: | | | | |
| Amoy | July 1–14 | ..... | 3 | |
| Foochow | July 8–14 | ..... | ..... | Reported as endemic. |
| Hongkong | June 24–30 | 12 | 12 | |
| Do | July 1–7 | 7 | 4 | |
| Nanking | July 8–21 | ..... | ..... | Present. |

[1] From medical officers of the Public Health Service, American consuls, and other sources.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

### Reports Received During Week Ended August 31, 1923—Continued.

#### PLAGUE—Continued.

| Place. | Date. | Cases. | Deaths. | Remarks. |
|---|---|---|---|---|
| Ecuador: | | | | |
| Guayaquil | | | | July 16–31, 1923: Rats examined, 4,800; found infected, 11. |
| Santa Ana (Manabi) | July 16–31 | 3 | 3 | |
| Egypt | | | | Jan. 1–July 26, 1923: Cases, 1,241; deaths, 619. July 16–22, 1923: Cases, 21, of which 8 urban, 13 occurring in 8 districts. |
| City— | | | | |
| Alexandria | July 16–22 | 2 | | |
| Port Said | do | 5 | | |
| Suez | do | 1 | | |
| Hawaii: | | | | |
| Honokaa | | | | July 20, 1923: One plague rat. |
| India | | | | June 10–16, 1923: Cases, 329; deaths, 266. |
| Karachi | July 8–14 | 18 | 15 | |
| Madras Presidency | do | 38 | 20 | |
| Rangoon | July 1–7 | 34 | 26 | |
| Java: | | | | |
| East Java— | | | | |
| Soerabaya | June 17–23 | 1 | 1 | |
| Palestine: | | | | |
| Jaffa | July 10–16 | 2 | | |
| Syria: | | | | |
| Beirut | June 11–20 | 1 | | |

#### SMALLPOX.

| | | | | |
|---|---|---|---|---|
| Algeria: | | | | |
| Algiers | June 1–30 | 9 | | |
| Arabia: | | | | |
| Aden | July 15–21 | 2 | 1 | |
| Bolivia: | | | | |
| La Paz | June 1–30 | 1 | 1 | |
| Brazil: | | | | |
| Pernambuco | July 1–7 | 8 | | |
| Rio de Janeiro | July 15–28 | 8 | | |
| British East Africa: | | | | |
| Kenya— | | | | |
| Tanganyika | June 3–9 | 1 | | Territory. |
| Canada: | | | | |
| British Columbia— | | | | |
| Victoria | Aug. 5–11 | 1 | | |
| Chile: | | | | |
| Valparaiso | July 1–14 | | 12 | |
| China: | | | | |
| Amoy | do | | | Present. |
| Chungking | July 1–7 | | | Endemic. |
| Foochow | July 8–14 | | | Do. |
| Hongkong | June 1–30 | 33 | 29 | |
| Do | July 1–7 | 6 | 11 | |
| Manchuria— | | | | |
| Dairen | July 2–8 | 1 | | |
| Harbin | do | 1 | | |
| Nanking | July 1–7 | | | Present. |
| Chosen (Korea): | | | | |
| Fusan | June 1–30 | 3 | | |
| Seoul | do | 9 | 4 | |
| Ecuador: | | | | |
| Alausi | July 16–31 | 3 | | |
| Egypt: | | | | |
| Cairo | Apr. 23–May 6 | 5 | 1 | |
| Hungary: | | | | |
| Budapest | July 15–21 | 6 | | |
| India: | | | | |
| Calcutta | July 1–7 | 4 | 4 | |
| Karachi | July 8–14 | 1 | 1 | |
| Madras | July 8–14 | 10 | 5 | |
| Rangoon | July 8–14 | 12 | 6 | |
| Java: | | | | |
| East Java— | | | | |
| Soerabaya | June 17–30 | 15 | 3 | |
| West Java— | | | | |
| Batavia | June 30–July 7 | 1 | | Province. |
| Latvia | | | | May 1–31, 1923: Cases, 5. |
| Mexico: | | | | |
| Guadalajara | Aug. 5–11 | | 1 | |
| Mexico City | July 1–21 | 48 | | Including municipalities in Federal district. |

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

### Reports Received During Week Ended August 31, 1923—Continued.

#### SMALLPOX—Continued.

| Place. | Date. | Cases. | Deaths. | Remarks. |
|---|---|---|---|---|
| Persia: | | | | |
| Teheran | May 15–June 14 | | 2 | |
| Poland | | | | Apr. 29–May 12, 1923: Cases, 15; deaths, 4. |
| Portugal: | | | | |
| Lisbon | July 8–28 | 16 | 2 | |
| Switzerland: | | | | |
| Basel | July 8–14 | 1 | | |
| Berne | July 8–28 | 9 | | |
| Lucerne | | | | July 1–31, 1923: Cases, 14. |
| Zurich | July 15–21 | 1 | | |
| Syria: | | | | |
| Aleppo | July 15–21 | 6 | | |
| Turkey: | | | | |
| Constantinople | July 4–10 | | 2 | |
| Union of South Africa: | | | | |
| Cape Province | June 10–16 | | | Outbreaks. |
| Yugoslavia: | | | | |
| Croatia— | | | | |
| Zagreb | June 24–30 | 1 | | |

#### TYPHUS FEVER.

| | | | | |
|---|---|---|---|---|
| Algeria: | | | | |
| Algiers | June 1–30 | 25 | 5 | |
| Bolivia: | | | | |
| La Paz | June 1–30 | 4 | | |
| Chile: | | | | |
| Valparaiso | July 1–21 | | 14 | |
| China: | | | | |
| Antung | July 16–22 | 1 | | |
| Egypt: | | | | |
| Alexandria | July 16–29 | 3 | 1 | |
| Cairo | Apr. 23–May 6 | 9 | 2 | |
| Latvia | May 1–31 | 90 | | Paratyphus, 4 cases. |
| Mexico: | | | | |
| Guadalajara | June 1–30 | 1 | | |
| Mexico City | July 1–21 | 27 | | Including municipalities in Federal district. |
| Persia: | | | | |
| Teheran | June 1–14 | | 2 | |
| Poland | | | | Apr. 29–May 12, 1913: Cases, 720; deaths, 61. Recurrent typhus: Cases, 188; deaths, 1. |
| Rumania: | | | | |
| Kishineff District | June 1–30 | 13 | | |
| Syria: | | | | |
| Aleppo | July 15–21 | 3 | 1 | |
| Union of South Africa: | | | | |
| Cape Province | June 10–16 | | | Outbreaks. |
| Orange Free State | do | | | Do. |
| Transvaal— | | | | |
| Johannesburg | June 1–30 | 3 | 1 | |

#### YELLOW FEVER.

| | | | | |
|---|---|---|---|---|
| Brazil: | | | | |
| Bahia | June 24–30 | 4 | | |
| Do | July 1–7 | | 2 | |

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

### Reports Received from June 30 to August 24, 1923.[1]

### CHOLERA.

| Place. | Date. | Cases. | Deaths. | Remarks. |
|---|---|---|---|---|
| India | | | | Apr. 15–June 9, 1923: Cases, 12,161; deaths, 10,486. |
| Bombay | June 3–30 | 34 | 23 | |
| Calcutta | May 6–June 23 | 289 | 242 | |
| Madras | June 3–30 | 2 | | |
| Do | July 1–7 | 1 | | |
| Rangoon | May 13–June 30 | 18 | 15 | |
| Indo-China | | | | Oct. 1–31, 1922: Cases, 92; deaths, 53. Preceding month: Cases: 24; deaths, 14. October, 1921: Cases, 100; deaths, 61. |
| City— | | | | |
| Saigon | May 20–June 9 | 11 | 10 | |
| Province— | | | | |
| Annam | Oct. 1–31 | 68 | 39 | Preceding month: Cases, 2; deaths, 1. |
| Cambodge | ....do | 2 | 1 | Preceding month: Cases, 3. |
| Cochin-China | ....do | 21 | 13 | Preceding month: Cases, 19, deaths, 13. |
| Tonkin | ....do | 1 | | Preceding month: No cases. |
| Philippine Islands: | | | | |
| City— | | | | |
| Manila | June 10–16 | 2 | 1 | Death in foreign case from Ching-kang, China. |
| Province— | | | | |
| Bulacan | May 17–23 | 1 | | |
| Capiz | May 27–June 2 | 1 | 1 | |
| Cebu | Apr. 8–21 | 1 | 1 | |
| Cotobato | Apr. 8–14 | 1 | 1 | |
| Laguna | May 6–June 9 | 2 | 1 | |
| Mountain | Mar. 25–31 | 1 | 1 | |
| Pangasinan | June 24–30 | 2 | 2 | |
| Russia (Soviet) | | | | Jan. 1–May 15, 1923: Cases, 10. |
| Siam: | | | | |
| Bangkok | May 13–June 23 | 9 | 10 | |

### PLAGUE.

| | | | | |
|---|---|---|---|---|
| Australia: | | | | |
| Sydney | June 30 | 1 | 1 | |
| Azores: | | | | |
| St. Michael Island | May 6–26 | 12 | 5 | In one locality. |
| British East Africa: | | | | |
| Kenya— | | | | |
| Kisumu | June 10–16 | 2 | 1 | |
| Tanganyika | May 6–June 2 | 3 | 3 | Territory. |
| Uganda | Apr. 1–30 | 7 | 5 | |
| Canary Islands: | | | | |
| Las Palmas | June 7 | 1 | | |
| Ceylon: | | | | |
| Colombo | May 6–June 23 | 15 | 17 | Plague rats, 36. |
| China: | | | | |
| Amoy | May 13–June 25 | | 10 | |
| Foochow | May 27–June 23 | | | Present. |
| Hongkong | Apr. 29–June 23 | 51 | 28 | |
| Manchuria— | | | | |
| Yakoshih | May 31 | 1 | 1 | Station on Eastern Chinese Railway. Occurring in tarabagan (niarmot) hunter. Bubonic. |
| Nanking | June 17–30 | | | Rodent plague present. |
| Do | July 1–7 | | | Do. |
| Ecuador: | | | | |
| Guayaquil | | | | May 16–June 30, 1923: Rats examined, 13,800; found infected, 39. July 1–15, 1923: Rats examined, 4,500; found infected, 4. |
| Do | July 1–15 | 2 | 2 | |
| Egypt | | | | Jan. 1–June 21, 1923: Cases, 1,051; deaths, 548. May 1–29: Cases, 345. Jan. 1–June 24, 1923: Cases, 1,069. Jan. 1–July 7, 1923: Cases, 1,110. Jan. 1–July 19, 1923: Cases, 1,198; deaths, 606. |
| City— | | | | |
| Alexandria | Jan. 7–June 24 | 35 | 15 | May 1–29, 1923: Cases, 14. |
| Do | July 1–15 | 3 | | |
| Port Said | Jan. 7–June 24 | 24 | 12 | May 1–29, 1923: Cases, 13. |
| Do | July 1–15 | 10 | | |
| Suez | Mar. 2–June 15 | 12 | 7 | May 1–29, 1923: Cases, 3 |

[1] From medical officers of the Public Health Service, American consuls, and other sources.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

### Reports Received from June 30 to August 24, 1923—Continued.

#### PLAGUE—Continued.

| Place. | Date. | Cases. | Deaths. | Remarks. |
|---|---|---|---|---|
| Egypt—Continued. | | | | |
| Province— | | | | |
| Assiout | May 1-29 | 64 | | Deaths not reported. |
| Benisouef | do | 7 | | Do. |
| Fayoum | do | 14 | | Do. |
| Garbieh | do | 2 | | Do. |
| Geizeh | do | 3 | | Do. |
| Girgeh | do | 123 | | Do. |
| Keneh | do | 22 | | Do. |
| Menoufieh | do | 34 | | Do. |
| Minieh | do | 46 | | Do. |
| Hawaii: | | | | |
| Hamakua | | | | Plague-infected rats: Pohakea, May 23, 1923, 1 rat; vicinity of Pacific Sugar Co. mill, June 2, 1 rat. |
| India | | | | Apr. 29-June 9, 1923: Cases, 4,623; deaths, 3,517. |
| Bombay | Apr. 29-June 30 | 503 | 411 | |
| Calcutta | May 6-June 9 | 13 | 13 | |
| Karachi | May 13-June 30 | 110 | 85 | Plague rats, 5. |
| Do | July 1-7 | 5 | 5 | |
| Madras Presidency | May 13-June 30 | 254 | 141 | |
| Do | do | 5 | 4 | |
| Rangoon | May 6-June 30 | 260 | 229 | |
| Indo-China | | | | Oct. 1-31, 1922: Cases, 93; deaths, 89. Preceding month: 70 cases; 68 deaths. |
| Province— | | | | |
| Annam | Oct. 1-31 | 15 | 14 | Preceding month, 15 deaths. |
| Cambodge | do | 75 | 75 | Preceding month, 51 deaths. |
| Cochin China | do | 3 | | Preceding month, 4 cases, 2 deaths. |
| Iraq (Mesopotamia): | | | | |
| Bagdad | May 1-31 | 222 | 143 | |
| Java: | | | | |
| East Java— | | | | |
| Soerabaya | Apr. 1-May 19 | 488 | 488 | May 1-31, 1923: Cases, 471; deaths, 471. |
| Soerakarta | | | | May 16, 1923: Epidemic in five districts. |
| Madagascar | | | | Apr. 1-June 15, 1923: Cases, 74; deaths, 71. Bubonic, pneumonic, septicemic. |
| Province— | | | | |
| Tananarive | Apr. 1-June 15 | 56 | 53 | |
| Tananarive | Apr. 16-June 15 | 20 | 20 | |
| Mauritius Island | | | | May 4-21, 1923: 2 cases. |
| Port Louis | May 4 | 1 | | |
| Mexico: | | | | |
| Tampico | | | | Apr. 15-21, 1923: 1 plague rat. |
| Palestine: | | | | |
| Jaffa | June 19-July 2 | 8 | 1 | Bubonic and septicemic. |
| Peru | | | | May 1-June 30, 1923: Cases, 111 deaths, 68. |
| Locality— | | | | |
| Ayabaca | May 16-June 30 | 15 | 13 | |
| Callao | May 1-June 30 | 5 | 3 | |
| Canete | May 16-June 30 | 3 | 2 | |
| Cerro Azul | May 1-31 | 3 | 1 | |
| Chiclayo | May 1-June 30 | 9 | 2 | |
| Cutervo | May 1-15 | 2 | 1 | |
| Huancabamba | May 1-June 30 | 34 | 25 | |
| Huara | June 1-30 | 2 | 2 | |
| Lima (city) | May 1-June 30 | 17 | 8 | |
| Lima (country) | do | 7 | 4 | |
| Mollendo | June 1-30 | 1 | 1 | |
| Salaverry | May 1-June 30 | 11 | 3 | |
| Trujillo | do | 2 | 3 | |
| Russia | | | | Jan. 1-May 15, 1923: Few cases in Far East regions. |
| Siam: | | | | |
| Bangkok | Apr. 29-June 23 | 27 | 26 | |
| Siberia | | | | Sporadic cases of plague reported yearly in localities vicinity of stations Matsievskaya and Borzia, Transbaikal Railway. |
| Haranhor | May 6 | 1 | 1 | Village in zone of endemic tarabagan (marmot) plague, Transbaikal Region. |
| Station No. 83 | | | | Station on Transbaikal Railway. Marmot plague during recent years. |
| Soktu | | | | Do. |

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

### Reports Received from June 30 to August 24, 1923—Continued.

#### PLAGUE—Continued.

| Place. | Date. | Cases. | Deaths. | Remarks. |
|---|---|---|---|---|
| Straits Settlements: | | | | |
| Singapore | May 6-June 30 | 6 | 8 | |
| Syria: | | | | |
| Beirut | May 12-June 10 | 2 | | |

#### SMALLPOX.

| | | | | |
|---|---|---|---|---|
| Algeria: | | | | |
| Algiers | May 1-31 | 2 | | |
| Arabia: | | | | |
| Aden | May 27-June 2 | | 1 | |
| Do | July 8-14 | 2 | | |
| Bolivia: | | | | |
| La Paz | Apr. 1-30 | 1 | 2 | |
| Brazil: | | | | |
| Pernambuco | May 6-June 16 | 5 | | |
| Rio de Janeiro | May 13-June 23 | 10 | 2 | |
| British East Africa: | | | | |
| Kenya— | | | | |
| Mombasa | May 20-26 | 1 | | From vessel from Bombay. |
| Tanganyika | Apr. 29-May 5 | 2 | | |
| Uganda— | | | | |
| Entebe | Apr. 1-30 | 4 | | |
| Canada: | | | | |
| Alberta— | | | | |
| Calgary | May 27-June 2 | 1 | | Infection from Deer Lodge, Mont. |
| British Columbia— | | | | |
| Vancouver | May 27-June 30 | 33 | 1 | |
| Do | July 1-14 | 5 | 1 | |
| Manitoba— | | | | |
| Winnipeg | June 3-30 | 4 | | |
| Do | July 1-31 | 1 | | |
| New Brunswick— | | | | |
| Kent County | July 1-7 | 1 | | |
| Ontario | | | | June 1-30, 1923: Cases, 13. July 1-31, 1923: Cases, 14. |
| London | July 15-21 | 1 | | |
| Toronto | June 24-30 | 3 | | |
| Do | July 15-21 | 1 | | |
| Quebec— | | | | |
| Quebec | June 10-16 | 1 | | Varioloid. |
| Saskatchewan— | | | | |
| Moose Jaw | July 8-14 | 1 | | |
| Regina | June 24-30 | 3 | | |
| Ceylon: | | | | |
| Colombo | May 6-June 2 | 23 | 1 | |
| Chile: | | | | |
| Concepcion | May 22-June 11 | | 3 | June 1-30, 1923: Cases, 2. |
| Valparaiso | May 7-June 23 | 6 | 121 | June 10-16, 1923: 29 cases reported from 2 districts. |
| China: | | | | |
| Amoy | May 13-June 23 | | 3 | June 19-25, 1923: Present. |
| Antung | May 14-20 | 1 | | |
| Chungking | May 13-June 30 | | | Present and endemic. |
| Foochow | May 13-June 23 | | | Do. |
| Hongkong | Apr. 29-June 23 | 65 | 53 | |
| Manchuria— | | | | |
| Dairen | May 21-27 | 1 | | |
| Harbin | May 7-June 24 | 5 | | |
| Do | July 1-7 | 1 | | |
| Mukden | May 13-20 | 1 | | |
| Nanking | May 13-June 23 | | | Present. |
| Do | June 24-July 7 | | | Do. |
| Shanghai | May 21-June 3 | 4 | | Foreign. |
| Do | July 2-8 | 1 | 2 | Cases, foreign; deaths, Chinese. |
| Chosen (Korea): | | | | |
| Chemulpo | May 1-31 | 1 | | |
| Fusan | do | 1 | | |
| Gensan | do | 1 | | |
| Seoul | do | 33 | 9 | |
| Cuba: | | | | |
| Antilla | July 8-14 | | 2 | From Preston. |
| Czechoslovakia | | | | Jan.-Mar., 1923: Cases, 15. |
| Ecuador: | | | | |
| Guayaquil | May 16-31 | 1 | | |
| Egypt: | | | | |
| Cairo | Mar. 12-Apr. 29 | 12 | 3 | |

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

### Reports Received from June 30 to August 24, 1923—Continued.

#### SMALLPOX—Continued.

| Place. | Date. | Cases. | Deaths. | Remarks. |
|---|---|---|---|---|
| Finland | | | | May 1–15, 1923: 1 case. |
| Great Britain: | | | | |
| Birmingham | June 18–30 | 3 | | |
| Bristol | June 28 | | | Present. |
| Cardiff | June 3–30 | 6 | | |
| Gloucester | June 28 | | | 123 cases reported in hospital; present in rural districts. July 15, 1923: Present. |
| Do | July 12 | 19 | | |
| Nottingham | June 3–9 | 1 | | May 1–31, 1923: Cases, 211. |
| Do | July 8–14 | 1 | | |
| Greece: | | | | |
| Athens | May 1–31 | 53 | | |
| Patras | Apr. 24–June 15 | | 19 | |
| Saloniki | Apr. 30–May 20 | 2 | 2 | |
| India | | | | Apr. 15–June 9, 1923: Cases, 5,914; deaths, 1,718. |
| Bombay | Apr. 22–June 30 | 208 | 141 | |
| Calcutta | May 13–June 9 | 12 | 9 | |
| Karachi | May 13–June 30 | 24 | 8 | |
| Do | July 1–7 | 2 | | |
| Madras | May 13–June 23 | 91 | 16 | |
| Rangoon | May 6–June 30 | 125 | 67 | |
| Do | July 1–7 | 4 | 1 | |
| Indo-China: | | | | |
| Saigon | May 20–June 23 | 28 | 20 | Including 100 surrounding square kilometers. |
| Iraq (Mesopotamia): | | | | |
| Bagdad | Apr. 1–May 31 | 20 | | |
| Italy: | | | | |
| Turin | May 28–June 3 | 1 | | |
| Do | July 2–15 | 2 | | |
| Jamaica | | | | May 27–June 30, 1923: Cases, 226. July 1–7, 1923: Cases, 13. (Reported as alastrim.) |
| Kingston | May 27–June 30 | 39 | | |
| Do | July 1–7 | 12 | | |
| Japan: | | | | |
| Kobe | May 28–June 10 | 2 | | |
| Do | July 2–8 | 1 | | |
| Java: | | | | |
| East Java— | | | | |
| Soerabaya | Apr. 22–June 16 | 172 | 19 | |
| West Java— | | | | |
| Batavia | May 5–June 8 | 17 | 3 | Province. |
| Latvia | | | | Apr. 1–30, 1923: Cases, 3. |
| Mexico: | | | | |
| Aguascalientes | July 8–14 | | 1 | |
| Chihuahua | June 11–24 | 7 | | |
| Guadalajara | July 22–28 | | 2 | June 1–30, 1923: Cases, 15; deaths, 2. |
| Mexico city | May 19–June 30 | 164 | | Including municipalities in Federal district. |
| Do | July 1–14 | 36 | | |
| Palestine: | | | | |
| Jaffa | June 5–11 | 1 | | |
| Persia: | | | | |
| Tabriz | Apr. 1–14 | | 1 | District. |
| Teheran | Feb. 22–May 14 | | 28 | |
| Portugal: | | | | |
| Lisbon | May 20–June 30 | 35 | 3 | |
| Do | July 1–7 | 2 | | |
| Oporto | June 10–30 | 6 | 3 | |
| Do | July 9–15 | 5 | 4 | July 8–28, 1923: Cases, 7; deaths, 2. |
| Portuguese West Africa: | | | | |
| Angola— | | | | |
| Loanda | Apr. 1–21 | | 2 | |
| Rhodesia (British Africa): | | | | |
| Northern Rhodesia | May 8–14 | 21 | 8 | |
| Southern Rhodesia | May 3–16 | 4 | 2 | |
| Siam: | | | | |
| Bangkok | Apr. 29–June 23 | 79 | 43 | |
| Sierra Leone: | | | | |
| Kaballa | May 1–15 | 1 | | |
| Pujehun | May 16–31 | 1 | | In Sembehun district. |
| Spain: | | | | |
| Barcelona | May 31–June 6 | | 1 | |
| Do | June 28–July 10 | | 2 | |
| Valencia | May 15–June 30 | 44 | 2 | |
| Do | July 1–21 | 21 | 4 | |

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

### Reports Received from June 30 to August 24, 1923—Continued.

#### SMALLPOX—Continued.

| Place. | Date. | Cases. | Deaths. | Remarks. |
|---|---|---|---|---|
| Switzerland: | | | | |
| Basel | May 27–June 30 | 4 | | |
| Berne | May 20–June 30 | 11 | | |
| Do | July 1–7 | 1 | | |
| Lucerne | May 1–June 7 | 36 | | |
| Zurich | May 20–June 23 | 10 | | |
| Syria: | | | | |
| Damascus | May 15–June 11 | 7 | | |
| Tunis: | | | | |
| Bizerta | June 10–20 | 1 | | |
| Tunis | June 11–17 | 1 | | |
| Do | June 25–July 1 | 1 | | |
| Turkey: | | | | |
| Constantinople | May 13–June 26 | | 45 | |
| Do | June 27–July 3 | | 4 | |
| Union of South Africa | | | | May 1–31, 1923: Cases, 33 deaths, 1 (colored). |
| Cape Province | | | | May 1–31, 1923: Cases, 32 (colored). |
| Do | May 6–June 9 | | | Outbreaks. |
| Orange Free State | Apr. 29–May 14 | | | Do. |
| Transvaal | | | | May 1–31, 1923: 1 case. |
| Do | May 26–June 9 | | | Outbreaks. |
| Yugoslavia: | | | | |
| Serbia— | | | | |
| Belgrade | June 10–16 | 1 | 1 | |
| On vessels: | | | | |
| S. S. Kargola | May 20–26 | 1 | | At Mombasa, British East Africa. Vessel arrived from Bombay Mar. 25, 1923. |
| S. S. Makura | May 26 | 2 | | Two cases in quarantine (reported as alastrim). Vessel left Victoria, B. C., Apr. 28, 1923. Touched at Honolulu. |

#### TYPHUS FEVER.

| | | | | |
|---|---|---|---|---|
| Algeria: | | | | |
| Algiers | May 1–31 | 41 | 14 | |
| Argentina: | | | | |
| Rosario | May 25–31 | | 3 | |
| Bulgaria: | | | | |
| Sofia | Apr. 22–June 23 | 11 | 2 | Paratyphus, 2 cases, 2 deaths. |
| Chile: | | | | |
| Concepcion | May 22–June 18 | | 3 | |
| Talcahuano | May 13–19 | 1 | | |
| Valparaiso | May 7–June 23 | | 26 | June 11, 1923: 34 cases in Salvador Hospital. |
| China: | | | | |
| Antung | May 28–June 24 | 12 | | |
| Hankow | May 19–25 | 1 | | |
| Manchuria— | | | | |
| Harbin | May 6–13 | 1 | | |
| Mukden | May 14–20 | 2 | | |
| Czechoslovakia | | | | Jan.–Mar., 1923: Cases, 191; deaths, 6. |
| Egypt: | | | | |
| Alexandria | May 14–June 24 | 7 | 5 | |
| Do | June 25–July 1 | 2 | 2 | |
| Cairo | May 12–Apr. 15 | 11 | 8 | |
| France: | | | | |
| Marseille | Mar. 1–May 31 | | 3 | |
| Germany: | | | | |
| Coblenz | May 27–June 2 | | 1 | |
| Hamburg | May 20–26 | 3 | | |
| Königsberg | May 13–June 2 | 2 | | |
| Stettin | May 27–June 9 | 1 | 1 | |
| Great Britain: | | | | |
| Bootle | Aug. 4 | 1 | | Vicinity of Liverpool. |
| Greece | | | | May 1–31, 1923: Cases, 876. |
| Athens | May 1–31 | 150 | 5 | |
| Patras | Apr. 24–June 15 | | 30 | |
| Piræus | May 1–31 | 353 | 11 | |
| Saloniki | Apr. 30–June 24 | 56 | 16 | Apr. 30–May 27, 1923: Recurrent typhus: Cases, 3; deaths, 3. |

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

### Reports Received from June 30 to August 24, 1923—Continued.

#### TYPHUS FEVER—Continued.

| Place. | Date. | Cases. | Deaths. | Remarks. |
|---|---|---|---|---|
| Guatemala: | | | | |
| Guatemala City | Apr. 1–June 30 | | 5 | |
| Hungary | | | | Jan. 1–May 19, 1923: Cases, 318; deaths, 36. In 11 counties. |
| Budapest | Jan. 1–June 2 | 48 | 12 | |
| Irak (Mesopotamia): | | | | |
| Bagdad | Apr. 1–30 | 2 | | |
| Japan: | | | | |
| Nagasaki | July 2–8 | 1 | | |
| Latvia | | | | Apr. 1–30, 1923: Cases, 96. |
| Mexico: | | | | |
| Mexico City | May 20–June 30 | 75 | | Including municipalities in Federal district. |
| San Luis Potosi | July 29–Aug. 4 | | 1 | |
| Palestine: | | | | |
| Jaffa | May 22–28 | 2 | | |
| Do | June 25–July 9 | 4 | | Relapsing fever, 1 case. |
| Jerusalem | May 22–28 | 1 | | |
| Persia: | | | | |
| Tabriz | Apr. 1–14 | 2 | | |
| Teheran | Feb. 22–May 14 | | 2 | |
| Poland | | | | Mar. 4–Apr. 7, 1923: Cases, 2,253; deaths, 172. Recurrent typhus: Cases, 338; deaths, 6. |
| Portugal: | | | | |
| Oporto | June 10–16 | 1 | | |
| Do | July 1–21 | 3 | | |
| Rumania: | | | | |
| Kishineff | May 1–31 | 28 | | |
| Russia | | | | Jan. 1–Apr. 30, 1923: Cases, 106,854. (Corresponding period 1922: Cases, 847,516.) Feb. 1–28, 1923: Cases, 17,577. Recurrent, Jan. 1–Feb. 28, 1923: Cases 43,510. |
| European Russia and autonomous republics. | Jan. 1–Apr. 30 | 93,999 | | |
| Siberia, Caucasus, and Central Asia. | ....do | 9,921 | | |
| Waterways and railways | ....do | 2,934 | | |
| Spain: | | | | |
| Barcelona | June 21–27 | | 1 | |
| Madrid | May 1–31 | | 1 | |
| Syria: | | | | |
| Aleppo | May 20–June 16 | 4 | 2 | |
| Do | July 8–14 | | | Present. |
| Beirut | May 1–10 | 1 | | |
| Tunis: | | | | |
| Tunis | May 28–June 24 | 3 | 2 | |
| Do | July 9–15 | 1 | 1 | |
| Turkey: | | | | |
| Constantinople | May 13–June 26 | | 19 | |
| Do | June 27–July 3 | | 1 | |
| Union of South Africa | | | | May 1–31, 1923: Cases, 102; deaths, 21 (colored). White—Cases, 6. Total, 108 cases, 21 deaths. |
| Cape Province | | | | May 1–31, 1923: Cases, 49 (colored); white, 5. |
| Do | Apr. 29–June 9 | | | Outbreaks. |
| Natal | | | | May 1–31, 1923: One case (colored). |
| Orange Free State | | | | May 1–31, 1923: Cases, 45 (colored). |
| Do | May 6–26 | | | Outbreaks. |
| Transvaal | | | | May 1–31, 1923: Cases, 7. |
| Do | May 6–12 | | | Outbreaks. |
| Johannesburg | May 1–31 | 1 | 3 | |
| Yugoslavia: | | | | |
| Croatia— | | | | |
| Zagreb | May 27–June 2 | 1 | | |

#### YELLOW FEVER.

| | | | | |
|---|---|---|---|---|
| Brazil: | | | | |
| Bahia | May 13–June 16 | 21 | 6 | |
| Colombia: | | | | |
| Bucaramanga | June 25–July 15 | | | Present. |

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